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EDINBURGH ESSAYS

BY

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PREFACE.

IT is hardly necessary to premise that this publication has been suggested by the *Oxford* and *Cambridge Essays* published by Mr. Parker, a series to which it is in aim and plan substantially similar. The main peculiarity and advantage of that plan is, that it demands no conformity to any one standard in matters of opinion, each writer being individually responsible for his own statements.

The term "Members of the University" requires a word of explanation. Properly speaking, that phrase includes only Professors and Matriculated Students; here, however, it is used merely as the briefest mode of indicating that the writers have been alumni of the University, or now hold office in it. To have narrowed the circle of contributors within more formal limits would have deprived the publication of any just claim to that representative character which is one of the objects aimed at. It may be necessary to add, for the information of those unacquainted with the peculiar

constitution of our University, that Graduates enjoy no academic privileges. Degrees in Arts, in particular, are elevated above any consideration of advantage to the possessor; they are strictly Honours, and, as a natural consequence, attract few candidates.[1]

[1] How little a Degree in Arts can be regarded as a fair criterion of distinction at Edinburgh may be judged from the following Table of the numbers of Students and Graduates during five years :—

Years.	Med. Stud.	M.D.	Lit. Stud.	M.A.	B.A.
1852	503	51	843	6	11
1853	490	85	795	6	9
1854	463	56	767	13	10
1855	495	54	789	8	12
1856	457	59	798	12	13

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PLATO.

PLATO is one of the most massive and magnificent, but at the same time, to us moderns at least, in some respects one of the most perplexing and unsatisfactory of writers. This fault, however, is not one of poverty and weakness, but proceeds, in a great measure, from the very vastness, comprehensiveness, and many-sided variety of his intellect. As on some mighty broad-based monarch of mountains, like our Scottish Benmuich-dhui, it is more easy to lose one's way, than on a compact, well-rounded, and distinctly marked hill, of which the boundary is anywhere easily measured by common optics; and as the approach to this huge-heaved summit is made through long stretches of bog, forest, sheer-rising cliff, and curiously-winding glen—so the study of Plato is not a work to be lightly undertaken by every man who can drive a gig creditably on good roads through the low country of Dr. Paley and Dr. Reid. The same slipperiness of approach, in fact, and the same difficulty of mastering, is observable in the case of Goethe, and other writers of various and rich fertility of genius. We do not mean, of course, that a great genius is always hard to be laid hold of—Walter Scott were a very notable example to the contrary—but what we say is, that there is a particular order of minds of the first class, that comprehend so much, and unite, under one gigantic intellectual supremacy, such contrary and apparently incompatible elements, that it is very difficult for readers, accustomed to the simple structure of inferior minds, to work their way to the central point from which the vast whole becomes comprehensible. Such a central point unquestionably there is in every strong and original mind; exactly as in the case of the lofty mountain, the summit, and the summit only, is the point from

which the whole rocky mass itself, and the circumjacent plains, may be intelligibly surveyed. Now, it is no doubt possible to be transported to the top of a high mountain in a balloon or other airy carriage, and thus, at a very small expense of time and labour, master the general outlines of such an intelligible survey; but for a really clear and thorough understanding of a mighty mountain, the detailed way of mounting gradually, through the winding approach of the long glens, is indispensable. The squashy bogs, dark forests, and rushing torrents without bridges, are not to be evaded. God has not willed that any knowledge obtained at a slight expense of labour shall be of equal value to that which is acquired at a great expense. War may be talked of by poets and Quakers; but it is understood only by those who have gone through a campaign. Plato, in the same way, to be known, must be studied; and he must be studied, not with the head only, but, like the Bible, with the whole man; for a great writer, who brings his whole highly developed nature into play, can never be appropriated by one whose culture is fragmentary, and the notes of whose life have never been blended into a harmony of which any reasonable ear can take cognizance. As a whole, therefore, Plato never will be comprehended by the million; at least till the million possess a great deal more patience, love of truth, reach of thought, and contemplative subtlety than they have hitherto displayed. Under good guidance, indeed, individual dialogues of the great master idealist, whether in the original or in a good translation, may be read with pleasure and instruction by any man; but whoever buckles to Plato honestly, as a whole, will find that he is full of stumblingblocks, and that he bristles with offence; and, what will try the student's temper most, his most interesting dialogues often seem to lead nowhere, and to end, like Highland roads, in a bog.

The misfortune is that Plato is an intellect of such a world-commanding class, that any man who has opinions at all must have some opinions about him, just as he has about Homer and Mahomet. No man can say that the empire of Plato over the minds of thinking men has passed away, or can pass away. To call yourself a thinker and ignore Plato, is to say you are a builder, and never heard of Michael Angelo

and St. Peter's. You dare not say so;[1] and therefore, if you don't really know anything of the architectural power of the great Florentine, you will, as vulgar honesty goes, pretend that you do so; your position will force you to make the best shift you can with the first best δόξα, or mere OPINION on the matter since you cannot boast the stable certainty of ἐπιστήμη, or KNOWLEDGE. Now, in cases of this kind, we generally find that the popular opinion is founded on the most prominent and the most striking, but for that reason, often the most superficial feature in the interesting object of which a knowledge is pretended. That Cromwell had a wart on his nose; that Byron had a club foot, which gave him more anxiety than the critiques on his poems; that the head of Pericles was too long, for which reason the sculptors always made his bust helmeted, while that of Julius Caesar was bald, which made it doubly grateful to that great commander to have his brow encompassed with an oaken wreath, or the coveted kingly diadem; such prominent and superficial accessories of personal appearance, in the case of well-known characters, will often be familiar to thousands who know nothing more of the person so curiously characterised. But these, so far as they go, are certainly true; they are accurate knowledge, not mere opinion. Even vulgar opinion is not so often altogether false as it is partial and inadequate, and therefore unjust. Of Mahomet, for instance, everybody knows that he was the prophet of an intolerant religion, which its most sincere professors have always most zealously propagated with the sword. This is quite true; but it is far from embracing the whole truth with regard to the religion of the Koran; and he who, with the inconsiderate haste of popular logic, uses this accurate knowledge about a fraction of a thing, as if it were the just appreciation of the whole, falls not the less certainly into the region of mere δόξα and delusion; for though the thing that he believes is true, it is not true as he gives it currency. He is in fact doing a thing in the region of ideas which is equivalent to passing a farthing for a guinea; an act whereby

[1] A good example of this will be found in Lord Jeffrey's article BEAUTY, in the *Encyclopædia Britannica*, where the author makes a smart preliminary flourish about the Hippias, which to the intelligent merely shows that he knew nothing about Plato.

he swindles the public and himself very nearly as much as if he were to pass off a piece of painted pasteboard for the same value. Still a farthing is better than a piece of pasteboard; and so with regard to a great philosopher like Plato, the common opinion of the most ignorant, that he was a dreamer and a fantastic speculator, who was always wandering among clouds and sunbeams, and who taught the art of falling in love with the souls of persons who have no bodies—this vulgarest notion is so far true, that Plato, as contrasted with Aristotle, and other bare and square intellectual architects, did amuse himself with weaving tissues of beautiful iridescent speculation, and with sketching magnificent pictures of infinite worlds beyond the moon, for the decoration of the walls of his stable palace of the science of eternal ideas; but beyond this it is altogether false—as false as it would be to say that the granite mountain of Cairngorm, where the precious stones are dug, is made of velvet, because it is in fact, in many places, carpeted with a very delicate soft moss, on which the foot of the most dainty lady might tread with luxury.

So far we have been talking of Plato only as a man, and of his critics and commentators, and whosoever expresses opinions about him as men. But Plato was a Greek man; and we are English and Scottish men. Herein also lies the cause of no inconsiderable difficulty of adequate appreciation. That the Englishman is one of the most noble species of the genus to which he belongs seems to be generally conceded. The poet Southey expressed the opinion of more thinkers than himself when he said that the Englishman is the model or pattern man, at least of all the species at present existing. But even those who are most thoroughly convinced of this must admit that he has his peculiarities—peculiarities of such a nature as make it extremely difficult for him to pronounce an impartial judgment on the character and value of notable men belonging to other nations. One of the strongest features in the Englishman's character is his nationality; and one of the most striking traits of that nationality is pride. Both these qualities are a great bar in the way of honest appreciation of foreign excellence; for it is not by the narrowness of a national estimate, but by the breadth

of a cosmopolitan sympathy, not by the isolation of pride, but by the condescension and chivalrous acknowledgment of love, that we learn to know and to appreciate whatsoever is not ourselves and of ourselves. But there is another potent element in the English character which renders it peculiarly unfit for the appreciation of any phenomenon so essentially Greek as Plato. We are a practical people. This word "practical" is indeed the shibboleth by which we love to recognise ourselves; as the Greeks delighted to picture themselves as more wise, and the French as more polite than other nations. But the Greeks, as we all know, were in the highest degree a speculative, and a subtle, and an essentially unpractical people. Therefore, as like is only recognised by like, the Greek mind, or at least a great part of it, will always remain a mystery to the English mind. Let Greek grammars and Greek lexicons be multiplied to infinity; let certain plays of Euripides and certain treatises of Aristotle be commented on, so long as England shall be England, by all the aspirants to a mastership, a deanery, or a bishopric in the kingdom; let head masters of large schools, and tutors of colleges, dilate, in every varied form of mingled reason and sophistry, on the never sufficiently to be belauded advantages of a classical education; with all this the inner soul of Greece will not be known by, or knowable to, the normal Englishman; and Greek scholarship in England will be liable to become a thing, as we have too frequently seen it, altogether without a soul—a thing that deals merely with the external shell of learning, and amuses a snugly-cabined leisure with all sorts of grammatical fribbles, and philological card-castles. How little, indeed, the English mind, even in the case of professional scholars, is occupied with the problems proposed by Greek philosophy, is manifest from the fact that the most important articles on Greek philosophers in Doctor Smith's admirable Dictionary, are written not by Englishmen but by Germans. Our genius has a most real, concrete, and altogether terrestrial tendency; there seems to be a considerable majority of Sadducees amongst us, or, as Plato calls them, "uninitiated persons, who believe in nothing but what they can lay hold of with their hands." These men will make railways, telegraphs, and tunnels, and build crystal palaces, and collect

industrial products from the ends of the earth, and exhibit in every possible shape and variety the sublime of what is mechanical and material; but for supersensual ideas, and the τὸ ὄντως ὄν—the enduring and only real substratum of all that is—they will have none of them. Plato is a dreamer and a fantastical fellow to them; as they are βαναυσικοὶ and "a nation of shopkeepers" to him. Between Plato and the English nation there is in fact a gulf which cannot be passed; any more than that greater gulf can be passed which lies between the sphere of English notions and the world of German speculation. Individual Englishmen will no doubt make excursions to the Brocken, and find that it is not always altogether possessed by witches and devils; but your normal Englishman will hold to the belief that the man who travels in Germany has brought home a score of bottle-imps in his pocket, and that for this reason it is dangerous to have dealings with him. So individual Englishmen, as Butler (though strictly speaking he was an Irishman), will lecture on Plato, and exhibit some portion of that ideal enthusiasm with which his dialogues were written; in Cambridge, also, where, since the days of Smith and Cudworth, Plato has never been altogether forgotten, learned professors of Greek will wisely use the advantages of their position by endeavouring to inoculate the susceptible mind of some young Kingsley or Maurice, with the living germ of Platonic speculation; nay, even in cold and precise Oxford, where Aristotle has long been worshipped as the only "god of the philosophers,"[1] a few heretical noses, with Puseyistic or Rationalising tendencies, may be found sniffling in this direction; but all these very praiseworthy exertions will never create a school of Platonists in England, such as that famous one which existed in Florence, illuminated by the first fair virgin flush of chaste thought that accompanied the revival of classical learning in the fifteenth century. Among the thousand and one publications in the domain of classical learning in England during the last century and a half, Butler's *Lectures* (so admirably annotated by Professor Thompson), with the exception of the translations of the eccentric Taylor, for a hearty

[1] A well-known phrase used by Cicero in reference to Plato.

recognition of the true Platonic attitude of philosophy, seem to stand almost alone.[1] None of our great and most applauded English names in the world, whether of thought or of professed scholarship, were Platonic. Neither Bacon, nor Locke, nor Bentley, nor Porson, nor Whewell, nor Thirlwall, nor Grote, is a Platonist. The last-named writer, indeed, has come boldly out with one of the most characteristic features of "the nation of shopkeepers," when he represents Plato as the subtle theorist, and the sophists as the useful practical thinkers of the ancient world in the fifth century before Christ.[2] This is the genuine English sentiment uttered by a learned London banker; while the strong denunciation of the sophists, and the hearty sympathy with Plato's Republic exhibited by one of the most talented of the English Puseyites,[3] can only be regarded as one of those manifestations of combined academical and ecclesiastical feeling that so often react in a very salutary fashion against the merely practical tendencies of our age and nation. As for Scotland (since in a matter pertaining to philosophy it were wrong not to speak of our own country specially), it is, of all quarters of the world, that one where a person might wander longest without stumbling on a thinking person who had any living pulses beating in sympathy with the great founder of the Academy.[4] Dr. Reid was, no doubt, a very strong-

[1] Badham's edition of the *Philebus*, recently published, must also be mentioned, as a work combining the most accurate philological learning with the soundest appreciation of the Platonic philosophy. It is understood that Professor Jowett of Cambridge is occupied with a new edition of the whole works of Plato. This is just what was to have been expected from that quarter.

[2] Mr. Grote, whose merits as a political historian no wise critic will deny, is perhaps not the man, under any circumstances, to write in a worthy tone about Greek philosophy; but his whole chapter on Plato and the sophists, if there were no graver offence, is completely marred for historical purposes by the violent polemical attitude which this writer constantly assumes. His pages sound often like reports of an emphatic party-speech delivered in Parliament, rather than the grave verdict of a historian.

[3] Sewell, in his introduction to the *Dialogues of Plato;* a book glowing with great truths, but sparkling also with the brilliant exaggerations that belong to genius without sense.

[4] Here, as in many other respects, the Scottish people have lagged wofully behind the conception of their own great reformer John Knox,

headed man, with a great amount of "common sense," a virtue on which the Scottish nation generally, and not without reason, place a very high value; but he was no Platonist. The present writer once put the question to the late Sir William Hamilton, whether either Reid, or Stewart, or Brown, might be looked upon as men learned in the Greek philosophy; and the answer was "*decidedly not.*" "The whole Scottish school of philosophy," said he, "was essentially destitute of a learned foundation." And most certainly it does appear, that of all possible cognitive organs, "common sense," however useful in its place, is that which is the least adapted for laying hold of some of the most fundamental ideas in Plato. But even had the Scottish philosophy been based on a higher principle, it would have remained impossible for the Scottish people to have received Plato into their culture, so long as the universities were condemned to content themselves with dribbling out the beggarly elements of a nominal scholarship to satisfy the low demands of the country presbyteries of a church in which learning bears no premium. Of the two elements which go to a knowledge of Plato—an ideal tone of thought, and a familiarity with the Greek language—the Scotch had perhaps less of the former than the English, and of the latter they were altogether destitute. Hence Platonism never existed in Edinburgh; and Lord Jeffrey and the Reverend Archibald Alison were allowed with general applause to propound a theory of beauty, the characteristic feature of which consisted in denying that there exists any intellectual principle of beauty at all—the identical sceptical doctrine, in fact, tricked out with sentimental phrases, of the stout old Abderitan sophist Protagoras, that "every man is the measure of all things to himself, of true things that they are true, and of false things that they are false," and that beautiful objects are so only in virtue of an arbitrary and ever-shifting bond of association in the mind of the contemplator.

Hitherto, our readers will likely think we have been

who, in the *Books of Discipline*, lays it down expressly that the study of Plato and the New Testament shall go hand in hand in the universities. See *First Book of Discipline*, "of *Readers*, and of the *Degrees and Times of Study*."

offering them very little encouragement to the study of Plato; having been eager, as it would seem, only to prove that both the English and the Scottish mind labour under a special incapacity of comprehending the works of the great apostle of idealism. Now, this certainly does seem ungracious; but it is so far necessary. It is not advisable that certain persons should wish to know anything about Plato, any more than about Coleridge, Carlyle, Shelley, or John Keats. Nothing is more beneficial to the mind than the cultivation of the habit of being content to be ignorant of certain subjects. Nevertheless there is one door through which the English mind has a more free and open access to the Platonic philosophy, viz., religion; and it is really astonishing, when we reflect seriously, how little this avenue has been made use of. Learned Germans have written valuable books on "the Christian element in Plato;"[1] and it is a well-known fact that many of the most authoritative of the Greek fathers spoke of the philosophy of the Academy, in the very same language that St. Paul used in reference to Judaism, as being a schoolmaster to bring the Greek world to Christ.[2] Nor does it require a very profound glance to see how Platonic philosophy and Christian faith, in their grand outlines, characteristic tendencies, and indwelling spirit, are identical; identical, at least, in so far as a thing of Hebrew, and anything of Hellenic origin, can be considered as presenting varieties of a common type. The prominence given to the doctrine of the immortality of the soul in all Plato's works, as contrasted with *the position of the same* doctrine in the *systems of Aristotle and other Greek philosophers*—the atmosphere of a pure and unworldly emotion, that, like airs from Paradise, floats through the blooming bowers of the Academy; the single-hearted dedication of the soul to truth, beauty, and holiness, as things essentially divine, for their own sake, to the utter contempt of all the inferior springs of action that lie in the words expediency, policy, utility, and worldly wisdom; these, with other characteristic features that lie on the very surface of the Platonic books, are things essentially Christian, and are felt by every person

[1] *Ueber das Christliche in Plato*, by Ackermann; a book worth reading.

[2] Clemens Alexandrinus says this distinctly.

of well cultivated moral sensibility, to be much more closely allied to the Gospel of John than they are to Aristotle, or John Locke, or Doctor Paley. Why then, we ask again, has this door of entrance to the inner sanctuary of Platonic meditation been so little taken advantage of in these lands? Plainly, so far as we can see, from the strange peculiarities of the English mind already alluded to, which at once robbed our scholarship of all capacity to develope the best elements which it contained, and our theology of all desire to form any alliance with the highest forms of scholarship. Our universities were, and still are, very closely connected with our churches; and yet Plato, the element in purely academical learning most essentially Christian, was neglected; just because the tyrannical force of the strong English character, with its obstinate idiosyncrasy, impressed a stamp both upon our theology and our scholarship which made it impressible in the least possible degree by anything in the shape of Platonism. Our universities, moreover, worked themselves, by the neglect of generations, into a course of narrow, pedantic routine, removed from the healthy breadth and large generosity of the English character almost as far as it certainly was from a truly stimulant and expansive academic teaching. It may be a harsh thing to say, but it is certainly true, that the combined action of these restrictive influences, produced, at an epoch now happily passing away, a temper of mind in the English universities, which was just as far from relishing or comprehending the Gospel of John as it was from relishing or comprehending Plato. The peculiarly Platonic element in Christianity was ignored by whole parties and whole generations of churchmen, just as much as the Christian element in Plato was unknown to scholars, or at all events little appreciated. Instead of giving lectures on Plato, an English scholar began at an early period to authenticate his claims for a future bishopric, by editing, with new Latin notes and a sprinkling of fresh various readings, some declamatory play of Euripides, for the hundredth time; and a Christian bishop, when once made, would find the occupation of his prelatical leisure much sooner in quarreling with Hermann about the metrical division of a choral line in Aeschylus, than in showing how the philosophers in the Academy bore

witness to the preachers of the Gospel, and the conversion of the apostle Paul from Judaism to Christianity had been prefigured by the no less sudden change of Polemo from licentiousness to sobriety.[1] Our scholarship, in fact, and our theology, were alike deficient in the philosophical element;[2] and without this element neither Greek nor theology could lead the normal English academical or ecclesiastical man into the essentially speculative domain of Plato. Hence in the most Christian and most classical country of Europe, the works of the man who wrote the noblest Greek, and taught the most Christianizing of doctrines, were practically ignored. Scholarship dressed itself up in modes of verbal priggery. Theology stood aloof from its best friend, partly from apathy and pure stupidity, partly from a frigid jealousy of introducing a stirring soul of inoculated vitality beneath the stiff ribs of its reputable formalism; partly also, among the men called Evangelicals, from a morbid incapacity of acknowledging even kindred emotion and character without the shibboleth of a favourite phraseology, and the scheme of a doctrine which tradition had rendered sacred, and custom indispensable. Some of these persons, had they known anything about him, would have eschewed Plato with the more jealousy, even as Cardinal Bellarmin is reported to have done, "*just because he was so very closely allied to Christ.*" Such likeness (it was feared by timid souls) might have given rise to a dangerous mistake.

So much for Plato's relation to the present time and place. We must now come closer, and consider his relation to his own age and his own people. And here we shall find, that just in proportion to the magnitude of his intellect, and the large capacity of his heart, were the thousand quivering points by which he lays hold of his environment. A small literary man, like our poet Rogers, may think and

[1] See the striking account of this heathen regeneration in Valerius Maximus, lib. vi. 9, and Diogenes Laertius.

[2] Emerson says with a severe sarcasm, "The English university system ripens bishops and extrudes philosophy (English Traits, p. 125);" and I remember reading an article in the *Times* to the effect that the much vaunted tutorial system, in behalf of which Dr. Pusey has written a work, is calculated to produce *learning, not thought.* But mere erudition will never inspire a man with enthusiasm for Plato.

write alone, unaffected in any perceptible way by the great intellectual, moral, and political movements of the age in which he lives—a great soul never. The relation indeed of a gigantic genius to its environment may be that of distinctly marked hostility, in some aspects, or in the gross. So with Tacitus, so with Shelley; but it can never be the relation of general indifference and absolute negation. Goethe, for instance, held himself aloof, with what to harsh judges might appear a morbid sensitiveness, from the political movements of his own time and place; but no German writer was more affected by the influences, moral, intellectual, and social, of the atmosphere in which he lived. Though in style and outward form presenting none of the more notable peculiarities of Germanism, he was, in soul and intellectual attitude, the most German of the German classics. This all classes of his countrymen understand. An exactly similar phenomenon presents itself in Plato. While, as a politician, he viewed, as fundamentally false, the whole machinery of the democracy in the midst of which he lived, and looked down, from a serene imperturbable altitude, even on the patriotic achievements of a Themistocles, a Pericles, and a Cimon;[1] as a philosopher, his grand aim seems to have been, to unite, into one grand vegetation of thought, whatsoever germs of the highest truth, carefully sown by previous thinkers, were now grown up into a garden of rich and various, but rank and unweeded speculation. Weeds, no doubt, there were many; and plants positively poisonous not a few. These it was his mission, in the first place, unsparingly to uproot, and with merciless dialectic, to rend and disintegrate; but after this negative work was done, his all-embracing soul, with a positive and constructive instinct which has never been surpassed, conceived the work of piling that imperial dome of thought, beneath whose comprehensive span the greatest thinkers of all ages have never failed to find a shrine for their

[1] See Gorgias, 515 D. Mr. Grote's quick eye could not fail to notice this in order to bring his maligned friends, the itinerant Sophists, into good company; but Plato rides always full speed against these masters of tongue-fence, while to the great statesmen he merely gives an occasional brush in passing, as if to remind them that they also are far from perfection.

worship. All the previous culture of Greece, intellectual and poetical, culminated in Plato; for though he was forced, by his position as a moral reformer, to make decided war against the Homeric theology; and though his profound reverence for philosophy, as containing the method of the highest culture, often led him to speak of poets and poetry in a light and depreciatory style; in spite of all this, his unfeigned reverence for the old poetic theologians and thinkers, who lived "nearer to the gods,"[1] shines through all his works; and he himself, while condemning dramatic poets in the gross, as little better than mimics and buffoons, is, at bottom, a more fine dramatist, a more delicate comedian, and a poet of more magnificent fancy, than many who have made mere historic and literary imitation the business of their lives. The splendid myths with which the Gorgias, the Protagoras, the Republic, and other of his best works are decorated, served conveniently enough, some have thought, the purpose of concealing the weak points of his system. Very probably they did. But they will be much more properly valued as a necessary part of that luxuriant amplitude of intellectual existence, and that fulness of universal Greek culture, by which Plato so strikingly overgrows the meagreness which is natural to common philosophical minds dealing with abstract truth. Many men, perhaps most men, in this country, will think Aristotle a more just thinker, and a more safe speculator; but no person with his eyes open can admire him as a more lofty philosopher and a more thoroughly accomplished Greek. The Stagyrite is the most massive man of science that Greece produced, not for Greece only, but for all peoples and all ages. But Plato combined in his own person all that was most human and most Greek in the highly cultivated age to which he belonged, not less completely, and with no less polish of execution, than Homer showed, when he gathered into two immortal epics all the humanity and all the Hellenism of the heroic ages. As a fertile author, after having produced a series of works, each stamped with its own peculiar freshness

[1] "οἱ μὲν παλαιοὶ κρείττονες ἡμῶν καὶ ἐγγυτέρω θεῶν οἰκοῦντες."—*Philebus*, 76 c.

Πειστέον δὲ τοῖς ἐιρηκόσιν ἔμπροσθεν ἐκγόνοις μὲν θεῶν οὖσιν."—*Timaeus*, 40. E., com. *Phileb.* 16 D.

and individuality, sometimes will create a greatest and crowning work, in which the excellences of all his previous productions are combined and harmonised; so Greece, after having produced philosophers of such opposite types as Xenophanes and Democritus, Pythagoras and Heraclitus, with philosophic poets like Pindar and Aeschylus, produced Plato. The genius of combined poetry and philosophy could go no further. The work of constructive speculation was ended. Wherefore Aristotle commenced to dissect animals, and Eratosthenes at Alexandria measured the diameter of the earth. On this track, Bacon, the pioneer of British physical philosophy, has pointed the way to us; and we are now measuring the descent of glaciers, and hunting out the law that guides the fitful storms. But Plato holds still the undisputed sovereignty over the realm of innate ideas which he conquered. Under various masks, and with shifting shibboleths, the grand truths he first systematized still continue to exercise the mastership over all those, whether poets, philosophers, or preachers, who have not been willing to make a cheap compromise with the bare reality which fronts them, but have sworn to impress the stamp of a higher ideal upon it, or to die in the attempt. While nobility of character and heroism of conduct shall live upon the earth, Plato and Platonism may not disappear from among men.

The progress of speculative philosophy in Greece, from the earliest times to the culminating epoch of Plato, presents a series of gradations, transitions, and combinations, exactly such as a thoughtful mind, observant of the usual course of human affairs, would naturally anticipate. First, we have in Orpheus a philosophy altogether and completely identified with religion and mystic ceremonial. In the operations of the infant human thought the principle of the division of labour had not yet been admitted. Nature, God, thought, and feeling, were taken up into the soul in one grand totality; and the spokesman of this totality was at once prophet and poet, priest and philosopher. After the lapse of a few centuries, the secular poet first appeared as a separate character in Homer; and, two or three centuries later, the philosopher in Thales. As was to have been expected, the first philosophy of the Greeks, like their first poetry, started from the fresh

sense-controlling and soul-enriching realities of external nature; it was altogether "objective," as the Germans phrase it, and so we find the wise Thales, six hundred years before Christ, calculating eclipses that even now form the basis of historical calculation to chronologers; and we perceive him also seeking, with genuine Greek subtlety, after one original ἀρχή, or fundamental principle of all things, and recognising that principle in WATER. Much, no doubt, could be very ingeniously said in favour of this doctrine; but Anaximenes, a townsman of its author, could, without much difficulty, say many things even more ingenious, and not less true, in favour of the finer fluid, AIR. Heraclitus of Ephesus, commonly called the weeping philosopher, carried this physico-metaphysical speculation to its highest point of refinement when he gave his suffrage in favour of FIRE, as the one elementary principle; for, if it was certain that water was only condensed air, it seemed equally certain that the power which kept water in this subtle form of gas, was heat; and this principle also, by the important part which it performs in the sustenance of animal life, seemed much nearer to the idea of an elemental ἀρχή than any other that could be taken cognisance of by the corporeal senses. It is manifest, however, that all merely material principles, would, as the process of speculative thought went on, appear inadequate to explain natural phenomena, of which a cunningly devised, and easily observed order, is one of the most striking characteristics. Whence came that ORDER? Pythagoras wisely noted the fact of its constant presence in creation, by announcing that ἀριθμός, or NUMBER, is the ἀρχή;[1] certainly a far more intelligible principle for reflection to act on than the ἄπειρον or INFINITE, of Anaximander; but it was reserved for Anaxagoras, the friend of Pericles, and the precursor of Socrates, to enunciate the fundamental idea, the key-stone of the Platonic philosophy, without which all other principles are mere explanations of what again requires to be explained. The philosopher of Clazomenæ taught that νοῦς or MIND, is the prin-

[1] Of the *Platonic* Pythagorean principle of ἀριθμός as the only true foundation of an intelligible doctrine of pleasurable emotion, including, of course, the fundamental postulates of æsthetics, which Lord Jeffrey completely ignored, Plato makes admirable use in the PHILEBUS.

ciple which lies at the bottom of all things; and hereby, no doubt, as Aristotle and all the ancients thankfully acknowledge, he enunciated a great truth, and a truth which, leading directly to God, as the Primal Mind, based philosophy on its only sure foundation, that is religion; for which kind service to human intellect, and to intelligible piety, no man will be surprised to learn that he was accused of impiety by the Athenian δῆμος, and banished to Lampsacus; for it has always been the habit of the uninstructed majority of mankind to bring the charge of irreligion against those independent thinkers who have a more worthy conception of the nature of the Supreme Being than the received popular theology implies. Along with Anaxagoras, though in a more abstract and less intelligible form, must be mentioned, as a champion of the unity and immateriality of the Deity, Xenophanes of Colophon, though his system seems to partake more of a distinctly pronounced intellectual pantheism, which, fixing the eye on the permanent oneness of the creating cause, is inclined to look upon the multiplicity of created things, as a mere play of modifications in the eternally substantial, of which reality, in the strict sense, cannot be predicated. From him, as from its proper fountain, according to Plato, proceeded that school of philosophy of which Zeno of Elea in Calabria is generally recognised as the founder, and of which Parmenides was one of the most notable ornaments. This school completely removed from the view of philosophic contemplation the multitude of finite things; and all real existence, according to it, is essential unity, with which alone a wise man will occupy himself. This school, however, freed itself from the perplexing entanglement of the "MANY" only that it might learn to float about with a sort of dazed stupor in the undefinable element of the "ONE;" which being a barren and wearisome sort of life, they amused themselves by practising all sorts of logical postures and contortions, exploding metaphysical air-bags, and doing all sorts of unfruitful things, of which rare specimens will be found in the Parmenides and the Euthydemus of Plato.[1]

[1] Against this Attic rage for metaphysical hair-splitting—something quite analogous to the syllogistic refinements of the medieval schoolmen—Socrates protests, with his strong practical good sense, and quiet humour in the PHILEBUS, 15 E.

The opposite of the Eleatic doctrine of the "one" was taught most decidedly by that same Heraclitus of Ephesus whom we have already mentioned as finding the principle of all existence in fire. For, in this subtle element, this thinker saw not only an all-pervading, all-working, and all-dissolving force, but a constant and unimpeded mobility, the unsleeping source of that ever-shifting variety which animates the face of all things, even those apparently the most permanent. In other words, mutability, as manifested in the eternal succession of an infinite "many," was the point of view which the philosopher of Ephesus seized as most congruous with his dark and sombre musings; and there can be no doubt that it is an aspect of things sufficiently fertile in the most varied illustration, which the superficial observer and the profound investigator will encounter with equal readiness. "One can never cross the same river twice at the same place," is a recorded saying of Heraclitus, characteristic enough for his point of view. The river that rolls and swirls and bubbles along; the clouds that chase one another round the globe, ever going and ever coming, dissipated only that they may be gathered, and gathering that they be dissipated again; the seed that bursts into a blade, branches into a leafy stem, and after being crowned with flower and fruit, ends in a seed again, in which the germ lies, ever watching for the first occasion to repeat the same series of mysterious evolutions: these, to the brooding eye of the Ephesian sage, were the ever-present natural types of his grand doctrine of mutability. Even the everlasting mountains, whose bare granite summits are washed by perpetual rains, and lashed by unsleeping storms, whose gigantic joints are riven by the expansive force of freezing water, and shivered by lightning, may be viewed as an enormous bruising machine, constantly enriching the valleys and plains with new supplies of finely-pounded loam. Such obvious phenomena of physical nature, to an eye altogether unpractised in tracing the curious transmutations and transitions which modern chemistry, physiology, and meteorology reveal, would supply ample texts for a philosophical doctrine of "BECOMING," which might be able to maintain its reputable place for a season, without any assistance from the other two more celebrated factors of metaphysics

KNOWING and BEING. Nothing ever IS; but all things ever ARE BECOMING. Such was the doctrine of Heraclitus of Ephesus; and after him, of many of those famous Athenian sophists who have acquired so evil a reputation through their antagonism to Plato, and who have found latterly so zealous a vindicator in Mr. Grote.

Who were these SOPHISTS? In one sense of the word, and in the oldest and most popular sense, Plato himself was a sophist, and Socrates, and all who professed any sort of wisdom superior to the vulgar. But in the other and restricted sense, the Sophists were a class of accomplished and highly educated men, who, in a country and an age where there was a great demand for knowledge, and the art of using it, went through the principal cities of Greece, teaching ambitious and talented young men, for hire, the art of public speaking, and such knowledge as was most available for the purposes of popular oratory. They were a sort of itinerant teachers, combining the functions of university professors, and the writers of articles in our Quarterly Reviews, in an age when the written word, in the shape of books, had not yet usurped that supremacy over the spoken word, which our modern plan of education so generally concedes to it. Now this very function of theirs will at once reveal to a considerate student what their attitude was in reference to such a deep-probing speculator, and such a profoundly earnest moral reformer as Plato. A school of philosophical reformers certainly they were not, and in their capacity of teachers of public eloquence, giving their services for hire, could not be. Young men did not pay large sums to be indoctrinated with profound principles of philosophy, but to be fitted out with the accomplishments necessary for making a figure in public life. Here, then, was established, in the very position and attitude of these men, in their whole aim, purpose, and striving, an antagonism to such men as Plato and Socrates, of which it is not strange that the most striking traces are visible everywhere in the writings and conversations of these remarkable men. Socrates and Plato also were public teachers, but they were not teachers who taught the art of influencing democratic assemblies by spoken words for hire; they taught a much loftier and more difficult art, the art of

self-culture, as the ultimate and only sufficient end for a rational being to pursue; and this without hire. That men acting from such opposite motives should have frequently clashed, should, in fact, have lived in a state of perpetual war with one another on some of the most important points of human interest and speculation, was unavoidable. To manage a popular audience is no doubt a delicate matter, and requires both talents and tact of no ordinary description; but to probe the deceitfulness of the human heart, and to unveil the splendid juggleries by which popular orators and popular audiences are often equally befooled, is a different and a much more difficult affair; and this is the business of philosophy. Neither does it require any peculiar perspicacity to perceive that, whatever other qualities may be necessary to enable a clever man to lead a popular audience, neither the profoundest thought, nor the highest character are indispensable for this business. On the contrary, profound thought will often put a man out of harmony with shallow hearers; and as for character, the multitude will never demand from those who address it a standard of morality much higher than that by which itself is regulated; that is to say, a public speaker, except on very rare occasions, when some fitful heroic impulse seizes the popular mind, needs not rise above those maxims of worldly wisdom, and that tone of respectable decency which the proprieties of common life require. In fact, a certain conformity to the low-toned morality, and the prudential wisdom of the many, may very often be necessary to a popular speaker, in order that he may reach his desired end. An appeal to the highest motives will appear ridiculous where only the lowest exist. All these considerations the very nature of the case supplies, without the necessity of formally citing any very erudite witnesses. From their very position, it is plain that the Sophists must often have been exactly what they are represented to be in Plato's dialogues, teachers of a very superficial wisdom, and of a very worldly morality. If any other charge has been brought against them by ill-judged panegyrists of Socrates and Plato, either in ancient or in modern times, we are content, with Mr. Grote, that it should be dropt, at least in so far as it affects the whole class. Individual Sophists of high respectability, and of an elevated

moral tone, such as Protagoras of Abdera and Prodicus of Ceos, unquestionably did exist. But that their relation to the rich youths whom they taught was anything but favourable to the inculcation of the highest views of truth or virtue, seems manifest; truth and virtue, in the highest sense of the word, were not commodities in which they necessarily had any dealings, though, as men like to make a market with fair words, no doubt they would often use the same high-toned phraseology as men whose moral convictions were much deeper, and whose life was more pure. And herein lay the quarrel which Plato had with them, a quarrel which, after all that Mr. Grote has advanced, we must still hold with the great body of scholars, both old and new, to have been a very just one.[1] If a man wished to write a book (perhaps some German has written such a volume already) in vindication of those much maligned characters, the Scribes and Pharisees at the time of Christ, no doubt he could find ample materials for his justificatory pleading in Josephus, or, where the Germans find so many arguments, in the air, or even in the New Testament; for Gamaliel certainly, for one, seems to have been a most respectable character, and to have been as free from the violent persecuting spirit characteristic of the sect to which he belonged, as Prodicus, the author of the well-known apologue on the choice of Hercules, was from the crime of moral corruption, with which the Sophists have been so liberally charged. But whatever virtues Gamaliel might possess, and half a dozen more notable men of that sect, whom a zealous scholar might set upon the top of a hill, history has stamped on the Pharisees, as a body, a character which is none of the highest, and which is likely to be indelible. In the same manner, the virtues of many of the Sophists may be conceded, by a reasonable man, as high as the zeal of a democratic historian is willing to plant them; but, as a class, it will remain undeniable that they neither pursued the highest objects, nor attained the noblest ends; their very profession forced them to foster that master-vice, the vain display of half-knowledge, which, as patriots and

[1] See the excellent paper on the SOPHISTS, in answer to Mr. GROTE, in the Cambridge Journal of Classical and Sacred Philology. June 1854; by COPE.

lovers of wisdom, it should have been their business to eradicate. If they were not an organized school of corruptors of youth, they were, at least, very dangerous teachers, as men whose leading principle was to have no principle at all beyond the local standard of respectability in the place where they might happen to make their wordy displays. Plato, no doubt, dips his brush in strong colours when he paints them, and runs occasionally perhaps, into caricature; but he was not a man to spend a whole life in fighting a series of terrible battles with straw-giants, created by himself for the gratification of his own spleen, or the exhibition of his own talent.

If we now inquire particularly what it was, in the midst of all this myriad-voiced babblement of strange opinions, that the comprehensive and harmonious soul of Plato really saw for himself, and settled for all future thinkers, we shall find no great difficulty in giving a distinct answer to honest inquiry on this point; for, as to the main characteristic of Plato's philosophy, the vulgar opinion is unquestionably right, so far as the mere adherence to an ill-understood traditional phraseology goes. Plato was distinguished from all previous philosophers by the prominence which he gave to the doctrine of "innate ideas." Now, the current opinion in this country certainly is, that these innate ideas were a sort of sublime phantasm blown to the winds by John Locke and the inductive philosophy of external facts which has been achieving such conquests in the modern world from the time of Bacon downwards. But the fact is, that the doctrine of innate ideas, as taught by Plato, never was touched either by Locke or Bacon, and never can be touched in substantials by any thinker who believes that he has thoughts, and that these thoughts have their root in a simple sovereign and plastic principle, which he calls his soul. No doubt there are some pleasant imaginations floating with iridescent colours round the border-land of the Platonic philosophy, which may be blown to the wind by the puff of any cheek, without special inflation from Locke or Bacon. When the great thinker, for instance, pushes his argument for the independence of mind so far as to seem to assert, in positive terms, the existence of ideas in the human soul in ready-made panoply transferred from a previous state of existence into the present, this must be regarded as a trick of the poet

immanent in the philosopher, ever ready to mistake a beautiful analogy for a substantial argument. Wordsworth, as a philosophic poet, was certainly more at liberty to illustrate this pleasant fancy than Plato as a poetical philosopher.[1] REMINISCENCE, as explained by Socrates in the Menon, and elsewhere, is not a fact, if the word be taken in its natural and obvious sense; it is not true that a person studying mathematics, for instance, when the truth of any profound relation of quantity or number flashes upon his mind, is recollecting anything that he ever knew before in a previous state of existence; the simple fact is that he recognises the evolution of this truth from other truths of which he finds himself in possession, as a consequence that cannot be avoided when once his mind is set to work in a certain direction. As certainly as a sportsman's dog will raise game when it comes near the spot where the bird is lying, and the scent begins to tell on its eager organ, so certainly will an idea lurking in a man's mind be hunted out into startled consciousness by an able Socratic questioner. But the simile limps, like all similes, in one point; the hidden idea is not lying in the soul, like the bird in the heather, ready-made; it must be shaped, moulded, and evolved, by a long, and sometimes a very painful process. All that we can legitimately say therefore, is, that there lies in every normal human soul the dormant capacity of acknowledging every necessary truth; and that this capacity is not borrowed from without. In this sense, and in this sense only, are innate ideas true; and in this sense, unquestionably, they are very far removed from what can, with any propriety of language, be called a reminiscence. But limited as the doctrine thus becomes, and presenting nothing to which a consistent Lockist needs object, it is not the less important a fundamental truth to be held by, and fruitful of all noble consequences when consistently applied. "ON EARTH THERE IS NOTHING GREAT BUT MAN; IN MAN THERE IS NOTHING GREAT BUT MIND," is a sentence which the late Sir William Hamilton considered of sufficient significancy to paint in large letters on the walls of his class-room, as that text to which the whole of mental philosophy could

[1] See the beautiful poem entitled "Intimations of Immortality."

most aptly be referred; but mind is not a passive and receptive substance, like a sheet of white paper, according to the famous simile of the Sensationalists, acting only in so far as it may be said to *act* at all, by absorption; it is rather a sleeping lion of enormous strength, which must be wakened indeed, in the first place, by the point of a pin, or the falling of a leaf, or a succession of such extrinsic influences, but when awakened, shakes its mane with a thunder which is the echo of no extraneous terror. Or take the case of a seed. There lies in every acorn the capacity of becoming an oak; the nascent mould, type, or "innate idea" of an oak (for ἰδέα, εἶδος, means only *mould, type, shape, sketch*); by virtue of which it can become such a specific tree, and none other—neither pine, birch, beech, lime, plane, nor any of the thousand varieties of the thing called tree. Now it is quite true that in order to evolve an oak from this acorn, a certain ascertainable accumulation of air, wind, rain, sunshine, and other external influences, is indispensable; but it is no less true that all the external influences in the world, accumulated to any conceivable amount, will not make that a birch which contains in itself only the innate type of an oak. This innate type, therefore, is entitled to be regarded as a thing not indeed independent of external influences for its development, but as existing *per se*, and prior to all such influences—as that ineradicable, inconvertible, plastic something, which contains, so to speak, the very soul, substance, and essential nature of an oak-tree.

To direct attention always and everywhere to this innate type, as alone revealing the real essence of any object, and with which alone is given the possibility of scientific knowledge, was the great merit of Socrates, in the first place, in a popular way, and afterwards of Plato, with all the completeness of philosophic system. Nor was the service which they performed small. In all human knowledge and feeling there are two factors, precisely analogous to those intrinsic and extrinsic forces which we have seen at work in the growth of a tree. Mind and matter, thought and sensation, character and circumstances; these are some of the common terms by which this universally recognised antagonism in our mysterious double nature is designated. Now, though a perfect philo-

sophy must of course adopt, and, if possible, explain both these factors, it is of infinitely greater consequence for humanity that the internal rather than the external factor should receive its fair prominence. For in the internal, as every one sees, lies all that characteristically distinguishes a man from a brute. No doubt the brutes also have their inner world; but it is of so small an extent, according to all appearance, and so completely enslaved to the external factor, that it is no more to be taken account of than the people are in a government of unmingled despotism. The external world is the tyrannical master of a brute—to man it yields itself in many departments as an obedient slave; and always the greater a man is the more decided is the supremacy which the thinking factor establishes over the sensational. This Plato saw and preached; for this Socrates lived and suffered. By asserting the legitimate sovereignty of mind as manifesting itself by ideas, over matter as manifested by sensations and passions, these great men published a gospel, so to speak, of the intellect, which made exactly the same claims for innate ideas, as contrasted with acquired experience, that St. Paul, and after him Martin Luther did, in behalf of faith contrasted with works. Both doctrines have been misunderstood and misrepresented; and naturally; because they are true only to thinkers and those who rise by meditation to that height, whence alone the confused sensuous details, of which our daily life is a part, become comprehensible. It is the philosophic doctrine of innate ideas only, as taught by Plato, that renders the details of a mighty plan comprehensible. Without ideas, sense may observe, and science may discriminate, but combination is possible only to philosophy. Every great original genius uses innate ideas, though he acknowledges no discipleship to Plato, but works under the mastership of that nature from which Plato drew, and of that God who is master of all.

The value of the Platonic idea may be shown by an illustration from the region of the Beautiful. The marble figure, which some stone-working poet has baptized a Corinna or a Sappho, and whose features, expression, and attitude, combine all that is most dignified in a queen, all that is most simple in a shepherdess, all that is most inspired in a poetic

thinker, and all that is most attractive in a Venus; this figure, for the possession of which, to adorn their museums, the heads of great monarchies will contend with rival diplomacy and emulous gold, when dashed to pieces by a sudden precipitation, is only so much lime which the farmer may fling upon his land, like straw, or dung, or any other refuse. Its value is gone as soon as it has lost its form; the material is common and worthless. Whence, then, is this form, this εἶδος (*species*), the superaddition of which imparts so much value to an otherwise trivial material? Whence did it come, and what is it? It is plainly neither more nor less than an image impressed by the plastic power of mind on a material utterly destitute of formative force; and the value of the work consists altogether in the amount of this formative force, or organizing intellectual energy, which has been made to act upon it from without. But this formative force is a thing altogether bodiless and untangible. Shatter the substance of the finest statue in the world to pieces, and the amount of calcine substance, or earthy matter of lime, remains the same as before the disintegration. It follows, manifestly, that the only real element in the admired object is that which, according to common phraseology, has no reality in it, viz., the idea in the mind of the artist which has been transferred to stone. This idea is, in fact, the alone thing which truly exists, so far as the work of art is concerned; it is the only thing also that possesses permanency; for whereas the marble may be broken at any moment, the idea may, at any time, be recovered from the intellect of the artist where it was originally generated and where it permanently resides.

That the ideas which belong to genius or original creative power are innate, in the highest Platonic sense of the word, most people will be willing to concede. For if not, why cannot every eye see in a daisy as much as a Burns or a Wordsworth saw? Why is not the physiognomy of every dog as eloquent and as pregnant with profound expression to me and to you as it is to Landseer? A common observer "wants the eye" to see in common objects what the great artist sees; that is to say, he wants an internal plastic and organising force; for it is by this mental force only, and not by mere pupils, corneas, retinas, and other apparatus of mere

sensuous vision that the man of genius obtains his superior insight. This will be granted. But Plato goes further, and maintains, in the THEÆTETUS, that all knowledge, as distinguished from sensation, is innate, and possible only through means of a something altogether different from sensation, which we call MIND. It is a complete mistake to imagine that sensation conveys to our brain any ideas whatsoever. There are no "ideas of sensation" properly so called. When I feel a hard stone, a soft moss, I have a sensation, and a dog or a fly may have this ἄισθησις, as well as a man or a god; but this feeling is no idea. But when I talk of hardness and softness, this is an idea representing the common element in various separate objects communicating certain impressions to my sensuous organs; and like all ideas, it cannot possibly exist without the presence of a central presiding power, to gather, compare, collect, and unify a multitude of individual impressions, and designate them by a common epithet. A dog may perceive two sticks of equal size, but man only conceives the idea of equality, and on this, and kindred ideas builds up the sublime and stable structure of arithmetical and mathematical science. All knowledge comes through the senses only as an avenue, but from the soul as the only creative cause. This is the Platonic doctrine of innate ideas, which has been so ignorantly spoken against. It is a doctrine neither fanciful nor mysterious, if men will only distinguish what must be distinguished, and calmly look on the co-existent factors that belong to every act of cognition. Unquestionably, as we said, there are two factors; but Plato and Emanuel Kant and Professor Ferrier are certainly right in giving all the positive and imperial power to the intellectual factor, without which knowledge is not conceivable.

Another field in which we may become practically alive to the importance of the Platonic doctrine of ideas, is the domain of natural science, where the department of typology and morphology, as the very names show, contains nothing but a series of physical illustrations of the divine idea of which Platonists are always speaking. Plato, if he pleased, might have used τύπος and μορφή, as well as the word εἶδος, for they mean substantially the same thing; and nothing could possibly have delighted him more than the beautiful doctrine

of the metamorphosis of plants, first promulgated by a great German genius, who like himself, combined the external hardness of the severe man of science with the expanded blossoming beauty of the poet.[1] What do we mean by morphology in nâtural science? is it not this, that the whole animal and vegetable creation is formed upon certain fundamental types and patterns, which can be traced under various modifications and transformations, through all the rich variety of things apparently of most dissimilar build? and what else is this but the dominancy of the like amid the unlike, of the one amid the many,[2] that Socrates is continually using all his subtle Greek skill to evolve in the practice of his great art of intellectual midwifery? A typology of plants and animals is merely, in Platonic phrase, an ideology of the organised physical universe; nor is there any point in which a modern tracer of rudimentary organs, with all the most modern microscopic appliances to aid him, would differ from the great founder of the Academy, unless perhaps, the modern scientific man should here and there take it into his foolish head that there might be a set of moulds without a moulder, a calculated gradation of forms without a calculator, an ordered world, or κόσμος without an ordering God. To Plato's mind, atheistical science would convey about as much meaning as suicidal life; for science is possible only where there are ideas, and ideas are possible only where there is mind; and minds are the offspring of God; and atheism itself is not merely ignorance and stupidity; it is the purely nonsensical and the unintelligible.

We hope what we have now said may have rendered it sufficiently plain to the reader, what Plato's point of view was when he talked in such strong language as he generally does of the *real* existence of ideas, and the unreality of every thing else. If a man has a dog, and that dog dies, what remains? The idea of a dog in the Divine Mind, which originally stamped the form of that animal upon a certain composition

[1] "Goethe is a hard granite mountain covered with a rich growth of soft voluptuous grass."—CARLYLE. Never was a more true or a better thing said of the great German, but it applies almost equally well to Plato.

[2] See particularly the PHILEBUS, 16 D., and what follows on the ἓν καὶ πολλά.

of nitrogen, hydrogen, carbon, and other animal stuffs, and will again stamp the same form on another composite of the same kind; thus supplying the loss of one dog by the creation of an infinite number; all of which live and die, and "have their day," while the divine idea out of which they sprang never can die, any more than the Divine Being himself can die who originated the conception. This idea, therefore, is the only permanent reality in the case; the only substantial immortal verity; for every individual dog perishes. This is Plato's way of viewing reality and illusion; and there surely needs be no difficulty in understanding it. But if his words be taken literally, and understood to say, that ideas have a separate existence of themselves independently of the Divine Mind in which they reside—that there really is a something called the idea of a dog altogether different from any individual dog, and from the pattern of canine nature in the divine intellect, we can only say that this is nonsense, and quite inconsistent with the massive sense and sound-mindedness which the Platonic writings every where display. Any strong expressions, seeming to imply such nonsense, must, in our opinion, be interpreted like the paradoxes of the Stoics or of the New Testament, of the Brahminical doctrines, and in fact all famous systems that have ruled the world, whether moral or intellectual. A paradoxical maxim is a strong one-sided statement, which, though not strictly true, serves the double purpose of amusing the proposer and stimulating the person to whom it is proposed.

We have stated Plato's theory of "KNOWING," and also, in the main, of "BEING." The mind only knows, and God only is; the knowing factor is the only substantial power in the universe. But what are we to make of the NON-I? of matter? of this table? of that granite rock? Here both Plato and Professor Ferrier are obliged to confess ignorance; the non-I is unquestionably something; but what it is, they do not tell us with satisfactory clearness. Plato avoided the barren fixation of the Eleatic school, who would have nothing to do with the "many" at all, and to whom, therefore, any occupation with physical philosophy could have been only the amusement of a dreamer dissecting his dreams. On the contrary, he has given us, in the Timaeus, a complete architecture

of the material cosmos, from the flaming orb of a star to the stomach of a star-fish; which forms one of the most interesting portions of his richly varied works. But this framework, grand as it is, has by no means the stable and massive character about it, that belongs to the mental and moral speculations of the same great architect. We feel that many parts of it float loosely enough in the air, and might be blown away with a very small puff. And no wonder. The world was not ripe for physical researches in those days; and Socrates did not unwisely to interdict them altogether. But one thing is plain from this, and from other parts of Plato's writings, that he was not a mere subjective idealist, in the modern sense. He believed in matter, at least in a something, through and by which only mind manifests itself in the present imperfect state, and by the agency of which the free and pure action of mind is often strangely troubled and perverted. What, therefore was this matter, this body, or σῶμα which belonged to the universe as much as to the little world of individual men? There are only two ways in which a thorough and consistent theist like Plato could have conceived of matter. Either it is something altogether arbitrary and extrinsic which God, by a sovereign act of His will, has created for the special purpose of manifesting His perfections; a mere material which God made out of nothing; or it is essentially and eternally connected with the divine nature in a close and intimate relation, as the principle of vitality with the vital organism, forming with mind not two separate things, but only two poles of one thing, in such a manner, however, always as that mind is the dominant and disposing factor. The former method of philosophizing on matter is that which has been commonly used in the Christian church, and is, we believe, the only method which is considered orthodox; the other is Pantheism, and has been taught in modern times by Spinoza, Jacob Böhme, Hegel, Goethe, and other profound thinkers. Now, with regard to Plato, if the question be asked, what was his opinion with regard to the nature of this mysterious bond between what, in common language, we call mind and matter, the answer which the present writer must give is, that he cannot tell. There is a region where all human intellect, even the sharpest, ceases to act with a vigorous

perspicacity; even as the horizon of the bodily vision loses its sharp line in a vague mistiness. Here also Plato becomes dim. To him, no less than to David Hume and Professor Fraser, there is "an insoluble problem," and an explosion of human theories in very sensible contradictions. When he approaches this region, therefore, Plato naturally loses the distinctness which always characterises him, where he keeps strictly within the bounds of the knowable. Sometimes he speaks of the body as if it were a mere prison-house, which the soul had only to burst in order to be perfectly happy and free. This, of course implies that matter is not necessarily connected with mind, but only in the way of an adventitious encumbrance. In the Timæus, however, he tells us that the world is a divine animal, and the stars flaming gods, which plainly implies that the relation between mind and matter is by no means of that mechanical kind which seems implied in the received doctrine of modern Christian churches. On the whole, Plato's attitude seems to have been to believe mainly in mind, and to accept matter as a something that could neither be avoided nor explained, but which must be content to receive from the philosopher, a distant recognition only, not a cordial salutation.[1]

So much for the strictly metaphysical part of the Platonic philosophy. But great as he stands forth to all ages, the champion of the rights of sovereign intellect, in combat with the rebellious rabblement of the senses, he is yet greater as a purifier of the fountains of human passion, and a preacher of righteousness in that Heathen Church of which Socrates was the Messiah. If man be, as he has been defined, even more a practical animal than a reasoning animal, and if he is nowise a merely speculative or theoretical animal, then the greatest minds must always be those which breathe in the element of action, and whose profoundest speculations about faculty must never for a moment lose sight of that stable and well-

[1] The language of Plato in the Philebus, 27 seq., as Badham justly remarks in his introduction, is certainly anything but pantheistic. It does not appear to me, however, that Plato anywhere clearly sets forth his notion of the relation of mind to matter; all that he was concerned to maintain being the *absolute supremacy of intellect*, which a pantheist like Spinoza may maintain as well as a dualist.

girt energy for the sake of which all faculty exists. Tried by this test, Plato will stand out a king of philosophers; superior, in some respects unquestionably, even to that stern and hard, cool, resolute, concise, and Wellingtonian Aristotle, whose famous principle of the golden mean in morals, recommends itself to our practical British intellect above all others, because it is the most useful in practice. Notwithstanding the pleasure which, as a genuine Greek, Plato always displays in the slippery gymnastics of a puzzling dialectic, a quality of mind which makes some of his dialogues not a little annoying to the broad, direct, and unrefining mind of the Englishman—the soul of his philosophy lies in morals, as every one must feel who will breathe for some time with serious sympathy the atmosphere of his works. In this respect there is nothing more striking than to compare the serious moral tone that winds up some of his dialogues with the chain of moral maxims, with which St. Paul generally concludes his doctrinal epistles. After eleven chapters of somewhat perplexed and puzzling argumentation, the great apostle—to take one example from many—proceeds, in the twelfth chapter of the Epistle to the Romans, to discharge a whole battery of the most important practical admonitions, as if eager to make it manifest to his readers that all argumentative theology is a necessary evil, which one must accept only as a traveller does a long dark tunnel, through which it is necessary that he should pass before he can emerge into the freedom of a broad and smiling landscape. In the same way the *Gorgias* of Plato—a dialogue which commences with a dialectical dissection of the idea of eloquence, annoying the British sense not a little with the seeming studied determination of Socrates not to see the plain truth when it stands before him, unless he can see it rigidly, according to the links of a strictly logical process—this ostensibly rhetorical *Gorgias* is led step by step into a purely moral vein of such sublime seriousness, that the most reputable modern reader, according to the maxims of worldly morality stands convicted before it, feeling much as Felix did when he trembled before St. Paul's lofty argument of temperance, and of righteousness, and of judgment to come. One feels the difference here between Plato the preacher of righteousness delivering his soul of a heavy moral burden, and that army of light-winged

skirmishers, called Sophists, making a twinkling display of their wordy accomplishments, whom, nevertheless, as already mentioned, a recent notable historian of Greece in this country has thought worthy of placing under the ægis of his most special championship. Between the Sophists and Socrates there was just this very important difference, that to them the wisdom of words was often everything, while to Socrates and Plato, as many distinct passages testify, it was nothing. The Sophists, as a class, were men to whom intellectual display and mere verbal dexterity sufficed for the creditable exercise of their vocation. To Plato, though himself the most eloquent of writers, such accomplishments without truthfulness, sincerity, seriousness, and a high purpose in life, were of no greater value than they were afterwards to St. Paul. To a man who is in thorough earnest to reform, first his own moral nature and then the social world around him, the mere act of talking, to whatever height carried, will always appear a very flimsy affair.

There is one essentially Greek trait about the Socratic and Platonic morality (for they are fundamentally the same)[1] which deserves special mention. With Socrates, as with Solomon, virtue and wisdom are identical; and all vice is either stupidity, disease, or madness. It has been said that the way to a woman's head is through her heart, and the way to her heart through her children. In the same way it may be said that the way to a Greek's heart in Plato's day was through his head, and the way to his head through dialectics.[2] It was in the doctrine of intellectual ideas, and in purely rational sciences, such as mathematics and arithmetic, that Plato found the *πού στῶ* of his whole philosophy of personal and social reform; here was the training-school that redeemed a man from the slavery of sense, and brought

[1] The comparison between the Socrates of Xenophon and that of Plato is well made, and their substantial identity proved by Zeller, in his *Geschichte der Griechischen Philosophie*, a book which I have read with great care, and can conscientiously recommend to all students.

[2] In proof of this the *Philebus* may specially be noted, and the high position which in that most important dialogue is assigned to the *τό φρονεῖν*, intellectual insight, above every sort of *ἡδονή*, or pleasurable emotion. The sentimental and mystic persons, sometimes called Platonic in modern times, could hardly be made to digest this.

him up by due degrees to the capacity of receiving the most elevated, the most comprehensive, and the least personal of all ideas—viz. justice. This method, we need scarcely state, is not to be found in the New Testament. There is no idea more foreign to the Gospel of Jesus Christ than that of leading to holiness through a syllogism. The New Testament goes direct to the deep fountain of all passion and action in the emotional nature of man. It breaks, by the mere assertion of the moral nature in man, the icy crust of self-righteousness which keeps the self-contained heart from being stirred by the breath of divine love; by the moral contagion of a superior nature it rouses the sleeping power of self-condemnation, the necessary postulate of a holy life; and commences violently a process of self-purification and regeneration, under the highly potentiated influences of the Divine Spirit. Now, there is nothing of the Socratic dialectic process in all this; and yet how potently the evangelic method works the moral history of nearly two thousand years can recount. In effecting moral reforms of great masses of men, the method of moral contagion will always be the most efficacious; but the method of the dialectic exhibition of the utter futility of unrighteousness before practical reason is not, therefore, to be considered useless, even under the Christian dispensation. There are some minds whom a fiery Whitfield may cause to feel uncomfortable for a moment, but he will not convert them. They have too much intellectual stoutness to be conquered by anything but hard logic; and to such minds it is necessary that Plato, and the Greeks, and Sir William Hamilton, should preach. The recognition of the importance of this intellectual avenue to the moral nature of man will show the significance of that question, which occupies such a prominent place in some Platonic dialogues, IS VIRTUE TEACHABLE? To us, who are continually employing the vast machinery of the Christian pulpit for the purpose of teaching it, the question seems a very idle one; but to the Greeks, who had no church of recognized authority, and among whom a mighty host of self-constituted teachers—the Sophists—had arisen, professing to teach not only eloquence, but wisdom and virtue, and making a livelihood by this profession, a more interesting question could not have been raised. On this

subject, though in the Protagoras the matter is left undecided, there cannot be the slightest doubt what the real opinion of Plato and his master was. On the one hand, when the Sophist made loud pretensions of teaching virtue in so many lessons for so many drachms per lesson, just as a druggist might teach any man how to compound a medicine by taking certain proportions of certain given articles and triturating them all together, Socrates might well deny that virtue was teachable in this way, or that justice and temperance can be instilled into a man's soul as wine can be sent down his throat by the transference of liquor from the wine-merchant's cask, and of pence from the wine-consumer's pocket. But, on the other hand, whatever may be the tongue-fence of individual dialogues, it is indubitably plain that Socrates, who in *Xenophon* identifies virtue with φρόνησις, and Plato, with whom in the *Republic* and elsewhere the same φρόνησις, or *insight*, leads the van of all the virtues, could have held no other doctrine than that virtue is teachable, when taught in the right way—that is, from the commanding point of a great central principle, like the principle of faith in the New Testament, and the doctrine of eternal, innate God-generated ideas in the Platonic system. If virtue were, like poetry, not teachable—that is, capable of exposition by scientific reasons, why did Socrates and Plato spend their long and valuable lives in teaching it?

But the grand characteristic and essentially evangelic trait of the Platonic morality is its lofty supersensualism, or what we may, by a more familiar name, call unworldliness. In this respect it will be greeted at once with joy by every true Christian as full sister to the never-sufficiently to be venerated system of ethics, of which the most perfect type stands before us in the sermon on the Mount, and in the life of Christ. I said before, and I repeat it here, that the study of Plato is no mere headwork. It is a severe purification of the whole heart and life, or it is nothing at all. The apostle of the Academy is not a whit behind the disciple of Gamaliel in the demands which he makes for a regeneration, and a renovation, and a complete reconstruction of the whole fabric of human life, so far as that is based on a morality of mere customary and conventional respectabilities.

"Be not conformed to this world!" is a sentence as frequent and as seriously meant in Plato as in St. Paul. In fact, there is in the world always a respectable sort of surface morality—and nowhere more than in this British world at the present hour—a morality of convenience and utility, which pays respect to the principles of right and wrong when generally formalized, but which recognizes them practically only in so far as local customs and decencies, proprieties, etiquettes, and the round of certain "inevitable charities" are willing to recognize them. With this morality the popular Greek Sophist in Plato's day was perfectly contented; he professed, indeed, in the very words of his highest eulogist Mr. Grote, no other virtue; and this morality, also, many a consumer of beef-steaks and swiller of porter in this lusty and material land accepts even now, after eighteen hundred years of Gospel preaching, as quite sufficient for all the purposes of a respectable English life. But how poor a thing it is, Plato in many places shows with a calm Titanic power that has never been excelled; and the perverse maxims and vicious practices with which our British society is rank, make it evident to the most superficial glance how far the current morality of our trades and parties is from seeking to accommodate itself to the principles of extreme moral purity laid down in every page of the New Testament. A sermon may be a very proper thing as Sunday work, and may help to bridge the way to heaven, when a bridge shall be required; but on Monday a man must attend to his business, and act according to the maxims of his trade, of his party, of his corporation, of his vestry. Then the respectable turf-hunter will stake his last thousand on the leg of a racing-horse, and think it quite like a Christian gentleman to allow his tailor's bill to lie unpaid for another year; then the respectable Highland proprietor will refuse to renew the lease to the industrious poor cottar on his estate, that the people, for whom he cares nothing, may make way for the red deer, whom it is his only passion to stalk; then the respectable brewer, instead of preparing wholesome drink from wholesome grain, will infect his brewst with deleterious drugs in order to excite a factitious thirst in the stomach of his consumers, and increase the amount of drinking; then a respectable corporation, to main-

tain their own "vested rights," will move heaven and earth to prevent the national parliament from acting on the plainest rules of justice and common sense in a matter seriously affecting the public wellbeing; and the respectable members of society shall flutter round the gilded wax-lights of aristocracy, and perform worship at Hudson's statue, and have respect to men with gold rings and goodly apparel, and do everything that is expressly forbidden in the second chapter of the epistle of James, which they profess to receive as a divine rule of conduct. These are only one or two of the more glaring points in which our commonly-received maxims and practice of respectable British life run directly in the face of that highest morality, which the most religious and church-going Englishman professes to acknowledge as his rule of conduct. Exactly such an issue Plato had with the respectabilities of Athens in his day. "You are a fool," said his accusers to Socrates, "to exercise a vocation which can only expose you to annoyances, create enemies, and endanger your life." This is the advice of worldly wisdom, given as often in London and in Aberdeen in the nineteenth century after Christ as ever it was in Athens four hundred years before the Advent. "I am no fool," said Socrates, "because a true man will never consider whether death or life may be the consequence of his actions, but only this, whether they are right or wrong."[1] This is exactly what St. Peter said to the elders, "*Shall we obey God rather than man?*" "Do you pretend to be wiser than our great statesmen Pericles, and Cimon, and Themistocles?" says Callicles, a thorough-going man of the world, to Socrates, in the *Gorgias*.[2] "Certainly I do," replied the sage, "if Themistocles or Pericles, or any of your highest-vaunted politicians placed their glory in anything rather than in making the people as virtuous as possible; for without sobriety and righteousness a city filled with harbours and docks, harbour dues, and quays, and walls, is filled with mere magnificent lumber!" Did any Hebrew prophet ever lift up his testimony more stoutly? Does the solemn word in the Gospel mean anything more when it says, "What shall it profit a man if he gain the whole world and lose his

[1] Plato, *Apol.* p. 28, B.

[2] 519, A.

own soul?" or, to apply the text to the English nation in the manner that a modern Socrates assuredly would, what will it profit England to spin more cotton, to pile more money-bags, to set more steam-coaches a-going, if Mammon is to be worshipped publicly everywhere rather than virtue and wisdom; if religion is made to consist in keeping every good thing as much as possible within the pale of one's own party; and if the poor man is to be driven out of the land which he defended with his sword in order that a few idle and insolent lordlings may possess the hills for the pastime of racing after deer? Those who have studied Plato most thoroughly will acknowledge that in no way could the searching and evangelic virtue of his ethics be made more distinctly manifest than in the shape of such a plain practical question as that which we have here made.

There remains now only one thing, that we should say a single word on Plato as a political philosopher. A politician in the active sense of the word, neither Socrates nor Plato ever was. They both rather kept studiously apart from public life with a sort of philosophic isolation that to our practical British intellect appears, to say the least, not a little one-sided. We look with contempt on the German professor who shuts himself up among his smoke-infected folios, and writes books about every the minutest thing that happened in distant worlds three thousand years ago, unmoved by any breath from the great storms of the living present which are braying around him, or the earthquakes which are grumbling beneath his feet. But this isolation is not altogether a matter of choice, even in the case of the poor tobacco-smoking beer-besotted Teut; and with regard to Socrates and Plato, we may easily see that they had the best possible reasons for not mixing themselves up with the political factions and personalities of an age which, they were convinced, if saved at all from impending perdition, could be saved only by a radical moral revolution. The same wise abstinence from political questions is observable also in the preachers of the Gospel. For men, in the position of Socrates and Plato, to have come forward as active politicians, would have been pretty much the same as if bishops of the early Christian Church had accepted office under the hostile Roman Government, before

Constantine. To take office is to accept a bribe. The dignified watch-dog who sits with a golden collar beside his master's mansion, is not so free to scour the country as the shepherd's collie, or the tinker's tyke. It was the love of freedom and a sure instinct of incongruity that made the great founders of Greek philosophy keep aloof from the political life of their age and nation. All the works of Plato, but especially the *Republic*, disclose a moral attitude towards the Athenian democracy, which must have rendered it impossible for the author to have any wish to participate in the management of a society which he regarded as based on principles fundamentally vicious, and contrary to the eternal proprieties of the universe. Whatever might be the case with Socrates, Plato certainly had not a single democratic element in his constitution. He is the most thorough and consistent intellectual absolutist that ever wrote. Not liberty, but order and harmony were the watchwords of that political constitution which he admired. We can easily imagine how little he felt himself at home among the very smart republican voices that found the wisest man of the age, so specially declared by the oracle of Delphi, guilty of corrupting the youth of Athens; and were willing to take their ideas of him from the ignorant jests of a writer of farces, rather than from the evidence of their own eyes and ears. There are many things, no doubt, in the immaculate mixed constitution of free Britain also, which from his lofty point of survey, Plato could scarcely have looked on with approval. Unquestionably he would have found a bedlam in our Parliament, an oligarchy in our peers, and a pandemonium in our populace.

The "Republic," in which the political views of the great philosophical reformer are set forth, is in one view the most magnificent, in another the weakest and most inefficient of Plato's works. It is magnificent as at once an ideal structure of the most perfect social harmony, and a grand architectural summary of the whole mundane system of the most lofty-minded of philosophers; inefficient as a practical exposition of social life, either in its origin, its complex existing relations, or its probable issues. The fact is, that in perfect consistency with the whole philosophy of innate ideas, it does not, and cannot, assume any historical position at all. It only projects

a moral possibility, and it stands as invulnerable against the objections of so-called practical men, as the precepts of the morality of the New Testament do, against the common objection that they are too good for the world. Plato had a perfect right to project the scheme of a social existence, with an utter disregard of all that was or has been in actual government; which, useless to every other effect, might at least serve as an unattainable ideal of perfection, by comparative approximation to which the excellence of all-existing states might be measured; and he has done so actually in certain points of view, which will make his book useful as a moral measurer to the end of time. But, on the other hand, he had no right, as a political philosopher, to ignore certain fundamental principles of humanity, out of which as from a root our whole political and social nature grows, and to build up a social fabric of imaginary human beings, whose existence may indeed be supposed, but is altogether unknown. What should we think of an architect who should sketch out the plan of an aerial palace, on the supposition that stones might be got of sufficient magnitude, as light as air bubbles, as elastic as caoutchouc, and as radiant as the sun? But stones are stones; and the architect ought to know this. Not to mention the very wonderful misprision of the important element of family, there is one fundamental defect in Plato's *Republic*, which must ever stamp its author, amid wonderful richness and nobility, as one of the most one-sided and unpractical of thinkers. He is so carried away by his antipathy to the democratic practices then existing in Athens, that he actually sketches the outline of a perfect state, from which the ideas of free development, active citizenship, and public spirit, are completely excluded. No doubt he supposes a body of perfectly wise men as the rulers; but even with this provision, a society in which every individual was moulded by a fixed type from above, and no free play given to individual character, would be apt, amid extreme virtuousness, to sink into an utter stupidity, of which no perfect example has hitherto been found, even among the most consistently stupid absolutisms of modern times. The nearest realization of Plato's perfect republic on earth, as has been well remarked, is the Roman Catholic Church. There we find in the bishops

and other High Church dignitaries, an aristocracy, founded professedly on the purest system of morality that was ever preached, from whom the mass of Christian men, sitting in a passive attitude, are to receive the most important wisdom and the most exalted virtue. How pleasant this is to an amiable female imagination, that God should commission a band of hoary-bearded, benignly-beaming, shovel-hatted men, to sit in Rome (the modern ὀμφαλός of the earth), and think, and see, and feel for us, the benighted millions, and save us from the disagreeableness of doubt, the labour of inquiry, and the delicacy of choice! But pleasant as this fancy may be, it can only be realized at a price too high to be paid for it, viz., universal apathy and stupidity. For if either the Roman Pope, or Plato, or Dr. Pusey, are to appoint boards of men, divinely commissioned to think for us in all important matters, what is the use of thinking? In that case, the King of Prussia might probably agree with these famous philosophers and theologers, that the shoemaker should think about his shoes, the sausage-maker about sausages, and the law-maker about his laws, in a word, as Plato is constantly saying:—*Τὰ ἑαυτοῦ πραττέτω ἕκαστος*, that "every man mind his own business;" but to whatever perfection such a system of harmoniously divided responsibility, might bring pin-heads and the public peace, it certainly would give the death-blow to all that we understand by the honourable phrases of citizenship, public duty, and public spirit. Where there is no freedom there can be no public, no people, only a compact organization of separate trades and professions. Verily, a strange world it would be, of which the wise men of Rome, of Oxford, of Berlin, or of Plato's *Republic*, should have the making!

We have thus finished a hasty sketch of the intellectual character and position of the great master-architect of the philosophy of ideas. I hope I have said enough to convince the intelligent reader that this philosophy is not in its essence a mere subtle crotchet of an over-refined mind, or the luxuriant efflorescence of a lofty imagination, but is in every view entitled to that high sovereignty over the human soul in its speculative struggles, which it has exercised more or less now during a period of above 2000 years. Plato, like Aristotle, has

been used and abused by various parties; and the world, as is its wont, may often have taken more note of the abuse of what was noble in this case than of its use. But as the character of Aristotle has come unsullied from the cobweb weavings of medieval schoolmen, and the consequent vituperations of men like Luther and Bacon, who paint him chiefly after the caricatures of his pseudo-disciples, so Plato, after seeing his name used for centuries to stamp every idlest imagination that has steamed up from the diseased brain of every transcendental devotee, can still be recognised by all who wish to find him, as the great bearer of all the loftiest truths to which the human mind in its hours of loftiest exercise aspires. Behind the pure Doric temple of his intellectual system, when the mists of centuries of vain talkers are blown aside, the blue sky of sober contemplation shines as clearly now, as ever it did to the Alexandrian fathers, who recognised in the great preacher of ideas the preparatory Moses of the heathen world; and, from pillar to pillar of that stable architecture, festoons woven from the flowers of paradise blossom with the same brightness, and scatter the same fragrance, that belonged to them in their native gardens of the Academy. We may account ourselves particularly happy in the present age, when the whole tone and temper of those writers who are exercising the deepest influence on the expanding intellect of the generation to come, are all either profound disciples or spiritual brothers of the great apostle of innate truths. Wordsworth, Coleridge, Tennyson, Carlyle, Kingsley, Maurice, Elizabeth Browning, are all fundamentally Platonic. The nation which produced minds of this class is not altogether "a nation of shopkeepers;" and the age which delights in the productions of their genius believes in something better than the mere mass of material "production" which is the idol of a certain school of political economists. Plato, I venture to predict, will be the favourite author of the men who read Greek in the very delicate and difficult transition epoch of the national speculation on which we seem to be entering; and the restored familiarity with such a thinker may not remain without some very sensible influence on our received formulas of expression in the highest regions of speculation and faith.

J. S. B.

EARLY ENGLISH LIFE IN THE DRAMA.

THE old historians narrate facts to us which might be safely predicated of any nation under the sun; the severe virtues of the Republic, the superb impurities of the Empire; how masses of men met together, and how stern discipline and the Roman square endured the assaults of barbarians; admirable lessons indeed, and deserving due consideration from all subsequent soldiers and statesmen. Still these are but the dry bones of history, from which the roundness of form and the light of life have departed, and something more is needed to refill the shrivelled husk of the past. Livy may write of dynasties, and Cæsar of battles; but a passing glimpse into an antique dwelling-house at Herculaneum or Pompeii brings us into more intimate contact, not it may be with royal or military formalities, but with quick-witted men who, along the white sands of their sea-girt Calabria, lived, and enjoyed life, sumptuously. And through this association the most trivial details are invested with significance and interest. The unstrung harp of the dancing-girl—lying there idle in the window, as it has lain since she cast it from her in the first terror of her flight—becomes tragic as Ophelia or Lear!

In English histories—whether literary or political—this connection has been too long neglected. Much of our ephemeral literature is of no value whatever, except as indicating the political faith of the society which produced it: and the problems of our political history cannot be interpreted aright apart from the effervescent table-talk which illustrates and explains them. Our social literature assumes an important

function when regarded as the habitual expression of national life; and our political history ceases to be a record of hopeless and unintelligible conflicts when read by the light of the minor moralities.

Among ourselves such men as Hallam, Macaulay, and Froude have done good service by asserting this sound principle of historic criticism; but we must not forget that these writers have avowedly treated the connection, exclusively or mainly, from the political point of view. So that a history of "The Social and Political Literature of England"—a history, that is, where the characteristic forms of literary activity shall not be subordinated to the authoritative facts of public life—is a history that remains to be written. I have selected for analysis the era which followed the termination of the protracted conflict between the Houses of York and Lancaster, as one in which this union, especially as preserved in our dramatic literature, may be illustrated not without interest. And I purposely select the reign of Henry VII. because—as the breathing-place between the strife of the Roses and the strife of the Reformation—it supplies an age in which the forms of the old life, half military, half monastic, continued to exist; an age, therefore, which may be rightly regarded as typal in its essential conditions of several preceding centuries. The spirit of the living God already stirred upon the face of the waters; but that colossal system which the statecraft and priestcraft of seven centuries had consolidated, though stricken at the heart, remained to outward seeming in vigorous and obstinate vitality.

The changes that have taken place in the external aspect of this country since the close of the fifteenth century are sufficiently remarkable. A more complete metamorphosis has not been effected in the character of the English people than in the character of the land which they inhabit. Great forests, such as now clothe the American savannahs, stretched across whole counties. The traveller might wander for days through the open straths by which they were traversed without encountering a single human habitation, except the wooden lodges of the keepers who protected the game. The Normans, in their passion for field-sports, laid waste entire

districts which had been rescued from sterility by the industrious energy of the Saxon; and though the later sovereigns had forced their nobles to adopt a more sagacious policy, so that large tracts in fertile situations had been and were being "disforested;" yet, to the end of Henry's reign, the woods and marshes occupied a good half of the land of England. The fens were of even greater magnitude than the forests. Many of them extended continuously for more than thirty miles, and travelling was much impeded, as it was necessary to skirt their borders. The city of Elie stood in the midst of one upwards of sixty miles in length, and was, like the ancient capital of Mexico, approached by three great dykes thrown across the marshes. The rich meadow pastures which now surround the town were overflowed for months together; the cormorant and other sea birds haunted the eaves of the abbey and the precipitous towers of the cathedral; and from the walls the eye embraced a vast expanse of water, dotted with green wooded islands, and traversed by the narrow lines of the causeways which led to the mainland. A desolate waste indeed!—and the picture of that inland sea which the old chronicle enables us to reconstruct, communicates a peculiar charm to the well-known fragment which describes King Canute and his knights lying on their oars, and listening to the even-song of the monks.[1]

Around the chief towns, and throughout several counties in the immediate neighbourhood of the metropolis, the country was tolerably cultivated. Even under the most enterprising landowners, however, the proportion of arable to pasture land was comparatively insignificant. It is impossible to ascertain the total amount of grain then produced in England; but from the extraordinary variations in the price of wheat which

[1] "Merie sungen the muneches binnen Elie,
The Cnut Ching rew there by;
Roweth, cnihtes, near the land,
And here we thes muneches saeng."

Harrison mentions the three causeways that led to Elie; the cormorant, he adds, was called the "night raven." "There is no cause wherefore I should describe the cormorant among hawks, of which some be black, and many pied, chiefly about the Isle of Elie, where they are taken for the night raven."

generally took place during the year, and from the frequency with which we find the poorer classes reduced to bread made of "peasen, vetches, and fern-roots," we may infer that the quantity raised was hardly adequate to meet the necessities of a not very dense population. For more than three hundred years these fluctuations are observable; but as centuries elapse, and cultivation extends, they become less continuous and extreme. In the year 1246 the price of the bushel of wheat was sixteen shillings; three years before it had been as low as two. During 1254 it sold in the Northampton market at one pound; in the Dunstaple at a fourth of that price. At Leicester, in the early part of March 1317, it was fifty-four shillings; four days later it fell to fourteen; during the harvest it reached eighty; a fortnight afterwards, when the crop had been collected, it was under six. From these and similar statistics, we are entitled to conclude that the supply of grain was often insufficient for the demand; that at the commencement of autumn the nation was generally in great want, sometimes on the verge of starvation; and that, consequently, the extent of land under permanent cultivation must have been extremely limited.[1]

Dense masses of forest, immense breadths of moor and morass, narrow stripes of arable and considerable tracts of pasture ground—such was the aspect presented by England in the fifteenth century. The forests were stocked with the roe and the fallow, and the antlered red-deer, who has now retreated into the naked fastnesses of Athol or Braemar, then "haunted the fens of Doncaster, and the great meres thereabouts." Along the sluggish banks of the inland rivers colonies of industrious beavers had erected their lodges, "wherein," says an old naturalist, "their bodies lie drie above the river, although they so provide most commonly that their tails may hang within the same;" and no traveller could fail to notice "the fair warrens of conies," which met him wherever he went.

[1] *State of the Poor*, by Sir F. M. Eden, Bart., 1797. Appendix Table of Prices. *Local History of Chester* in the *Vale Royal*. It is necessary to remember, however, that an acre never produced more than twelve bushels of wheat or "one good load of hay." Of course, this difference in the rate of production must be taken into account when estimating the total extent of cultivation.

Rabbits were then a valuable article of commerce, as the fur, especially the black, was in great repute for various articles of dress, and the production of "conies" had consequently become a stereotyped branch of trade. Among the fens, and upon the unenclosed commons, numerous birds which are now seldom or never met with in this country, then bred regularly, and remained throughout the year. Flocks of the great bustard strode ostrich-like along the downs; and from the meres, amid the cackling of an innumerable assemblage of the rarer wild-fowl, might be heard at times the solitary boom of the bittern, or the trumpetted alarm of the wild swan. No human intruder disturbed their solitariness, save where the unfrequent cabin of a half-savage waterman nestled among the reeds, or the evening bell rang from the white walls of an island monastery. For the uncompromising genius of the Church had penetrated these primitive seclusions, and men who shrank from the rough issues of common life, practised, upon the Marsh of Romney, or among the Lincoln Washes, the perilous virtues of the cloister.[1]

The English of the fifteenth century are naturally distributed into two great classes—the clergy and the commonalty. The distribution was patent at a glance. The manorial residence of the Norman baron, and the white conventual buildings belonging to the monks, which flanked the village on either side, and within the village itself the richly decorated chapel, whose rustic spire pointed heavenward, and the still effigy of the old knight underneath, with his nerveless fingers playing with the hilt of his half-sheathed sword, forcibly expressed the twofold influence—monastic and military—which then determined the characteristic details of English society.

All over Britain, the monastic bodies had secured for themselves the goodly places of the land. The number of the monks was almost incredible. Even in particular districts, and attached to single houses, they were to be estimated not

1 *Description of England* by W. Harrison—prefixed to Holinshed's Chronicle, 1574. Leland's *Itinerary*, 1538 (2d edition, Oxford, 1744). Ramsey Abbey was on an island in the Lincoln Washes, and the Franciscans had, in 1264, a convent on Romney Marsh.—*Mores Catholici*, iii. 260.

by tens or by hundreds, but by thousands.[1] Such a drain upon the energies of an industrious population could ill be sustained, even under the most favourable circumstances; and when this immense array turned its arms against the society it had been instituted to protect, we need not wonder that the burden should have quickly become intolerable. But looking at its external aspect, the conventual system undoubtedly communicated an impressiveness to our public life which it has never since entirely recovered. That around it, therefore, many fond regrets and anticipations should linger, which the Reports of Royal Commissioners, and the Records of Consistorial Courts cannot quite remove, need not surprise us. There is much to excuse the artistic devotee, and Mr. Digby may be pardoned for the emotion he expresses when describing the evils that have come to pass in this country since it fell away from the Catholic unity of Christendom. In the old "ages of faith," the monks, he tells us, were in the habit of inscribing pious aphorisms upon the rocks and trees around their dwellings, for the solace and refreshment of the orthodox. When the way was steep and rugged, as in the ascent to Monte Calvaro at Domo Dossolo, the pious procession was comforted by the assurance that such-like was the path to heaven; or directed, when bewildered among the mazes of the forest, to the guidance of a spiritual power—

Sancte Michael Archangele, defende nos in praelio.

But among the alienated ruins of Nutley Abbey, Mr. Digby's devout enthusiasm can trace no reverent inscription; only at best a gruff Protestant intimation, warning all belated Anglicans, with English directness, that whoever does not keep the beaten path will be prosecuted according to law! A lamentable backsliding indeed, and genuine Catholics may reasonably lament the degeneracy; but it will take some time, we suspect, to convince our hard-headed countrymen that the English nation is less brave, or honest, or generous,

[1] In the Monastery of St. Finian, in Ireland, there were at one time 3000 monks; the Abbey of Bangor, near Carrickfergus, contained 4000; and Bangor, in Wales, was divided into eight compartments, to each of which 800 monks were assigned.—*Mores Catholici*, iii. 226.

or practically devout, since it has ceased to practise these pretty and sentimental pieties.[1]

But it cannot be disputed that the life of a cathedral city in these days was a life thoroughly artistic. The ecclesiastical artist understood perfectly what was wanted, and every effect was characteristic and impressive. The most minute detail had been anxiously studied, even down to the melancholy warning of the death-crier.[2] And what a scene it presents! Within the cathedral itself, under the grotesque mouldings, and among the noble forms of Catholic art, that august inevitable ritual is being continually repeated. On the benches of the chapter-house, the policy of princes is freely canvassed by mitred ecclesiastics; in the adjacent cloister, the clergy solemnly exorcise a baron possessed by the devil; at the feet of a dirty devotee in rags the noblest damsel in the county seeks grace and absolution on her knees. Within the conventual buildings hard by, all manner of men are to be met with,—the patient illuminator of pious missals, the wily grey-eyed old abbot, the miscreant who cannot venture beyond the gate of the sanctuary, the faded beauty and the tainted politician who have retreated from the world to learn that for the broken heart there is no release "this side o' the earth." Beyond the immediate control of the higher ecclesiastic, the

[1] *Mores Catholici*, iii. 271.—The "Ages of Faith" is a curious book, full of all manner of learning, Christian and Pagan, priestly and scholastic; there is power, too, of a rambling and discursive kind, and many of the descriptions of local scenery are admirably picturesque; but, on the whole, the book is painful, incomplete, illogical, and unsatisfactory.

[2] In a statute passed towards the end of the reign of Henry VIII., it is ordered "that clarks are to ring no more than the passing-bell for poare people, unless for an honest householder, and he a citizen; nor for children, maydes, journeymen, apprentices, day-labourers, or any other poare person." Is this the first intimation of that "respect for persons" characteristic of Protestant sects, and which the arrogant impartiality of Catholicism repudiated—in theory at least? In 1662, the Bishop of Worcester asks, in his visitation charge:—"Doth the parish clerk or sexton take care to admonish the living, by tolling of a passing-bell, of any that are dying, thereby to meditate of their own deaths, and to commend the others weak condition to the mercy of God?"—*Annals of Worcester in the Olden Time*, 1849. Sir Walter Scott, in the *Border Minstrelsy* (ii. 33), asserts that the custom is still (1803) retained in many villages in Scotland.

scenes, though still attesting the supreme authority of the Church, are not so artistically arranged. Pilgrims, swarming with vermin, swarm along the highways, filthy mendicants recount their filthy adventures at this or the other shrine, pardoners dispose of their stale charms cheaply to the nearest bidder. Crucified saints are stuck over the doorways of taverns, and emaciated Madonnas hang in stable windows. The crazy guesses and grotesque vagaries of men, partly sad, partly satirical, shape themselves into quaint combinations—Dances of Death and the like. Hoary Pagan superstitions and the obstinate charities of Catholicism, vices and virtues, penances and pardons, the seven sacraments and the seven deadly sins; all are huddled together, pitifully, impiously, ludicrously! Still that vagrant populace is controlled by one common impulse, and the tangled forest of Gothic foliage which sweeps into the evening sky, protects a society, which, throughout its intricate issues, is pledged to maintain the faith "once delivered to the saints."

Against the tyranny of this magnificent organization, the English layman opposed his natural sense of independence, and the action of his municipal system. Excepting the haughtier Norman nobility, who, in the civil wars, had nearly exterminated each other, the gentry were exclusively resident on their estates. Some of them occasionally proceeded to London for the transaction of public business; but the hardship of being sent there was considered so great—although the burgesses at least were *paid* for their attendance—that the Crown was frequently obliged to compel the shires and burghs to elect parliamentary representatives.[1] Impassable roads infested with highwaymen, wretched hostels infested with vermin, made it a matter of difficulty and peril to reach the metropolis from a distant county. Nor were natural obstacles considered sufficient to guard the provincial nationalities; artificial restrictions were added. The bye-laws of the county-courts and of the burgh-magistrates were conceived in a peculiarly jealous and hostile spirit. The most common articles of consumption, as wheat and butter, could not be

[1] The burgh representatives were paid for their attendance on Parliament at the rate of two shillings a-day.—*Social History of the Southern Counties*, by George Roberts; a work containing much curious information.

transmitted from one county to another, except in small quantities and by special license. Numerous economic evils were no doubt produced by this rigorous surveillance—such, for instance, as the remarkable difference in the price of provisions which existed simultaneously in neighbouring markets—but, on the whole, it cannot well be questioned that the policy was dictated by sound and prudential considerations. It enabled, nay, indeed forced, each district of the kingdom to preserve within itself the elements of a healthy and independent society. The position, too, in which the landlord stood to his tenant, had long before been greatly modified, and villenage, in its oppressive forms, had been converted into a more humane and honourable relation. "Let no man, for the future," said a statute of the twelfth century,[1] "presume to carry on the wicked trade of selling men in market, like brute beasts, which hitherto hath been the common custom in England:" and from that time forward imperceptible modifications of the common law had secured the emancipation of the serf. The gentry thus appeared, not as scions of the nobility, but as leaders of the people, with whom, on their many national and religious festivals, they familiarly mingled. To the working classes themselves, especially to those engaged in commerce, the existence of the local guilds and of the great trading societies, supplied, besides, an obvious basis of co-operation and defence. The effect of a system which concentrates in the capital the minute machinery of government is invariably to weaken and enervate the national life; and had such been the secular policy of the middle ages, there can be no doubt that the yoke of the ecclesiastic would have been much more firmly rivetted than it was; but, fortunately, the discharge of provincial duties, and the exercise of local government, had made the English civilian, the yeoman as well as the gentleman, tenacious of his rights, and jealous of his liberties.

We cannot now form any very definite notion of the material comfort of the general population. The houses, we are aware, were built of wood; for although bricks were known in the reign of Henry VI., they were little used until the beginning of the next century. The cottages of the working classes (a few planks nailed together, and plastered

[1] 1102. 3 Henry I.

over with mud to keep out the cold), were, of course, the most imperfect in construction; but, except in point of size, the residences of the country magnates would not have gained much by comparison. A pallet stuffed with straw, and a "good round log for a pillow," formed the usual couch of not a few who were certainly classed among the gentry. "Lattices, and fine rifts of oak, in checker-wise," supplied the place of glass, which was then only used for church windows. Even in 1567 it continued so rare and expensive a luxury, that stringent precautions were taken for its preservation. "It were good," says the steward, in his report on Alnwick Castle, "that the whole lights of every windowe, at the departure of his lordship, and during the time of his lordship's absence, *were taken downe and laid up in safety*, until, on his return, they be set up anew." Chimneys were little used, and the dense smoke of the wood or peat fire was allowed to escape as it best could. The people were, on the whole, well fed; rye and barley bread, bacon, cider and beer, and upon the sea-coast, herrings, forming their usual fare. A plain hospitality was at that time the fashion, but the rich soon became more fastidious, so much so, that, in the succeeding reign, "the cookes of the nobility were for the most part musical-headed Frenchmen and strangers." The people throve upon their homely fare, and do not appear to have been much afflicted by any general distemper until the end of the century, when the sweating-sickness broke out, and, with the plague, lasted almost uninterruptedly for one hundred and fifty years. "Early to bed, early to rise," was the universal maxim, and our forefathers had breakfasted, and begun the work of the day, at an hour when we are leaving the assembly or the supper-party. The wages of agricultural labourers were generally regulated by statute, and had been steadily increased from ten shillings, which was about the highest rate fixed in 1388, to upwards of one pound per annum, the maximum in 1490. But it was in the style of dress that the contrast between the rich and the poor was offensively marked. The Normans, whose taste was always gaudy and cumbrous, delighted in a rich and elaborate toilet, while they compelled the Saxons to retain the simple style dictated by primitive habits. Many sumptuary laws were passed for

this express purpose, and the 22d Edward IV. cap. 1, for instance, enacted that only "gentlemen" should wear "pikes" to their shoes, boots more than eleven inches in length, or commit any other fashionable absurdity then current. Thus while the lower orders, in scanty and sad-coloured vestments of Kendal-cloth, retained no small resemblance to their forefathers who had fallen at Hastings, the attire of the upper classes, especially of the great dignitaries in church and state, had become superb and extravagant. The nobles clothed themselves in velvet gowns, lined with rich furs, and powdered with jewellery; to these their dames added the white satin hoods which they wore when travelling, and the evening head-gear, which, towering up to a peaked horn in the centre, like that in Michael Angelo's statue of Moses, fell on either side in showers of transparent folds, through which glittered the meshes of the golden caul of net-work which confined the hair. No doubt these fashions now appear sufficiently preposterous; but it is wonderful what puerilities a red lip or a pair of black eyes can redeem; and, notwithstanding the libels which the old portrait painters have perpetuated, it appears certain that the fair Englishwoman of the fifteenth century, in her hoops and horns, was not a whit less captivating than her demure and puritanic descendant. Indeed, in so far as a thorough understanding of the capacities of brilliant colouring, and the felicitous adjustment of rich and ponderous draperies went, our Norman ancestors were never surpassed; and we have to thank Cromwell and his Ironsides for the sombre and even ghastly sensations which any assemblage of well-dressed, well-educated, nineteenth century Englishmen inevitably produces on the artistic mind.[1]

To whom we are indebted for more important changes; for to the Commonwealth must be ascribed the morose and bitter sectarianism which saddens, to the present day, our English civilization. Happily the bloody and passionate Apocalypse of the Puritans was not yet realised; and Tribulation-Wholesome, and Praise-God-Barebones, "seques-

[1] Eden's *State of the Poor*, chap. i. and Appendix. Harrison's *Description*. Leland's *Itinerary*. *Northumberland House Book*, xvii. An. 1667. *Dress and Habits of the People of England*, by Joseph Strutt, 1799. *Costume in England*, by F. W. Fairholt, F.S.A., 1846.

tered" from public life, continued to await, in some out-lying region of infinite space, the advent of better times. England was still the "merrie England" of history—the England of cheerful contentment and generous hospitality, of May-day festival and Christmas cheer, of old customs and habits, of antique sports, pastimes, and holidays. They were not, perhaps, very highly refined, or very widely cultivated, these old-fashioned rustics and gentlemen; but they were brave, healthy, athletic, sound in wind and limb, and enjoyed themselves thoroughly, as healthy men will do.[1]

I cannot, indeed, pretend to assert, on behalf of their moral and spiritual life, the claims which certain writers have not hesitated to put forward. When we say that they were healthy, happy, passingly honest and devout, I think we have said all that we are entitled to say. More than *that*, their ballads, their romance, their superstition, show us that they were *not*.

Most of their ballads, indeed, are strikingly prosaic—especially when compared with the Scotch. The poetry of the northern nation has all the elements of poetic power—genuine pathos and passion, sudden imaginative glimpses, a startled sense, at times, of the mysterious darkness round about. The supernatural, in particular, is gifted with a strange horror, which chills the blood, and even the volatile and capricious elfs (too unsubstantial, one would suppose, to be associated with the burden of responsibility, except by an intellect constitutionally morose and passionate) are allied with a gloomy destiny and a mysterious retribution. And the story is told so plainly, so directly, so simply, with such resolute homeliness, that we dare not disbelieve it at our peril.

> Then darkness covered a' the hall,
> Where they sat at their meat;
> The gray dogs, youling, left their food,
> And crept to Henrie's feet.

[1] "Consider with thyself, gentle reader, the old discipline of England. Marke what we were before, and what we are now. Dion saith that Englishmen could suffer watching and labour, hunger and thirst, and beare off all stormes with head and shoulders; they fedde upon roots and barke of trees; they would stand up to the chin many dayes in marshes without victualles—the men in valour yielding not to Scythia; the women in courage passing the Amazons."—*The School of Abuse*, Stephen Gosson, 1579.

And louder howled the rising wind,
And burst the fastened door;
And in there came a griesly ghost,
Stood stamping on the floor.

Such lines as these are worth a legion of modern ballad-mongers! The English poems have the same obviousness and directness of expression; but they proceed from an unimaginative and illiterate life, and are not homely, but commonplace. In the Border-romance, there is a curious difference between the Catholic or Royalist ballad and that of the Cameronian,—the former, like the fated cause it celebrates, bold, fervid, full of wild love or hate, ruth or revenge; the latter formal, precise, pedantic, and scrupulously suited to the monotonous snuffle through which Habakkuk Mucklewrath testified against the Amalekites. With rare exceptions the English poets are the poets of the Covenant, adapted to a different order of things. But there *are* exceptions, and *The Nut Brown Maid*, from the perfectly unselfish and sacrificial spirit which it breathes, remains for ever a noble and very memorable tribute to the age in which it was written.

From these ballads, and from other sources, we are enabled to form a pretty accurate estimate of the popular notions of the supernatural. There were, in the first place, scattered fragments of the old Breton romance—the King of Knighthood, the exploits of the Round Table, and,

Fairy damsels met, in forest wide,
By knights of Logres and of Liones,
Launcelot, or Pelleas, or Pellenore.

I do not think, however, that these romance-forms, or the peculiar demoniac agencies with which they were accompanied, retained, in the fifteenth century, much influence over the heart of the people. They were originally a foreign element, and had never been thoroughly naturalized, at least among the rustic population, without whose active co-operation no superstition can hope for permanence. "The Elf-Queen, with her jolie compagnie," was the true offshoot of the popular imagination; though even she and her subjects, the proper denizens of Faerie, were subordinated, with true English literalness, to the grotesque form of Robin Goodfellow. That "merry wanderer

of the night" at least was thoroughly national, and, as the homely avenger of the more homely duties, the poetic justice of the peace, the mad humourist whose mirthful antics "frighted the maidens of the villagery," and to whose malicious intervention the trivial annoyances of domestic life were attributed, was undoubtedly the centre of a superstition always most authentic when most literal. Puck was distinctly a compromise, the recognized channel of intercourse between the common and the spirit world. But the English fairies themselves were not the elastic and evanescent creatures of the poetic imagination; they were gross, substantial, "of the earth, earthy;" the benignant promoting the performance of the plain domestic duties; the malignant, like those described by Gervase of Tilbury, who, when the household had retired, "came to the hearth at night, devoured frogs, were of antiquated countenance and wrinkled visage, diminutive, and clothed in rags," —not a very ideal conception surely. Queen Titania was in no way superior to her subjects, and the affection which, in the Midsummer's Dream, she lavished on an ungainly mortal, had not unfrequently, if we are to credit the popular authorities, been as indiscriminately bestowed.[1]

The union of the two elements, into which I would chiefly resolve the national supernaturalism, the King Arthur romance and the local fairy traditions, is strikingly illustrated in a very beautiful and curious fragment republished by Mr. Halliwell, "*The Adventures of Sir Gawen.*" Though the language has been modernised, the form of the legend, which can be traced back at least as far as the fifteenth century, has undergone little alteration. Arriving, towards the close of a summer evening, at the entrance to a forest, Sir Gawen, one of the heroes of the Round Table, alights, and tying his horse to a tree, threads his way through the dense vegetation to an old and ruinous castle. Here he incautiously enters, and the ghostly adventures which then ensue are narrated with great dramatic effect. As he groped his way through the dark

[1] Ritson's *Fairy Tales*, 1831. *Life of Robin Goodfellow*, 1628. *The Cosenages of the West*, 1613. Gervase of Tilbury, *Otia Imperialia*, s. i. c. 18. Percy's *Reliques of Old English Poetry*. *Illustrations of Fairy Mythology*, by J. O. Halliwell, 1845.

vaults underneath, a sudden and agonizing shriek burst forth above him, and "something rudely brushing down grasped him with tremendous strength; in a moment he became motionless, cold as ice, and felt himself hurried back by some irresistible being; but just as he reached the vault, a spectre of so dreadful a shape stalked by within it, that, straining every muscle, he sprang from the deadly grasp." Seeing a faint blue light in an upper chamber, he went towards it, and beheld, from a distance, the form of a human corse simmering above the fire. He looked on with a horrible fascination, until, "as the last pale portion of the light died away, the scarce distinguished form of some terrific being floated slowly by, and again another dreadful groan ran deepening through the gloom." Whilst he was thus agitated with horror and apprehension, "a dim light streaming from behind, accompanied with a soft, swift, and hollow tread, convinced Sir Gawen that something was pursuing him, and, struck with bewildering fear, he rushed unconscious down the steps, and fell forward on the ground." When he returned to consciousness, the images of death, and the rites of witchcraft, had vanished, and he awoke among the soft, sweet, and tranquil scenery of a summer moonlight night. He had been guided to Fairy-land during his trance, and the vision of the Fairy-camp, pitched in the centre of a circular lawn, "whose tint and softness were beyond compare, and which seemed to have been lightly brushed by fairy feet," is charming. Not many minutes elapsed "ere he discovered, on the border of the lawn, just rising above the wood, and floating on the bosom of the air, a being of the most delicate form; from his shoulders streamed a tunic of the tenderest blue, his wings and feet were clothed in downy silver, and in his grasp he had a wand white as the mountain snow. He rose swiftly in the air, his brilliance became excessive from the lunar rays, his song echoed through the vault of night, but having quickly diminished to the size and appearance of the evening star, it died away, and the next moment he was lost in ether. Sir Gawen still fixed his eye on that part of the heavens where the vision had disappeared, and, shortly had the pleasure of again seeing the star-like radiance, which in an instant unfolded itself into the full and fine dimensions of the beauteous being, who, having collected

dew from the cold vales of Saturn, now descended rapidly towards the earth, and waving his wand as he passed athwart the woods, a number of like form and garb flew round him, and then, shaking their wings, which spread a perfume through the air, burst into one general song." Then from the wood emerged fairy damsels clad in white, and warlike knights in mail of tempered steel, and in the centre arose a throne of ivory inlaid with sapphires, whereon sat a form of exquisite beauty; "a plain coronet of gold obliquely crossed her flowing hair, and her robe of white satin hung negligent in ample folds." The gold-crowned Queen of Faerie courteously addresses Sir Gawen, but, just as the knight is about to reply, she fades into the moonlight, the spirits disappear, and in the white light of the summer dawn, he finds himself beside his charger, who is cropping the grass by the side of a public thoroughfare. The story, of which I have selected a few prominent points, is striking, and admirably told, and deserves to be more generally known, as one of the most graphic and pictorial of our legendary superstitions.[1]

These demoniac and benignant beings constitute, as I have said, the principal *dramatis personæ* in the popular religion; but there are others, and even the machinery of Catholicism is not omitted. In an age, indeed, when every husbandman tied a stone with a hole in its centre round the neck of his cattle, "to allow the devil to goe through," it is not surprising that the Arch-fiend should have played a conspicuous part in any popular performance, as indeed he did. But the frequent allusion to the *Mater Unigeniti*, as in that old ballad of Thomas the Rhymer, where the poet mistakes the Queen of Faerie for the Virgin Mother, "that bare the childe that died for me," seem to me to prove that Madonna-worship must have existed at one time as a much stronger instinct among the English people than we are now inclined to admit. Selected to associate the secular supernaturalism with the ecclesiastical superstition—the only form which habitually appears in both—Mary was no doubt the object to whom the homely habitual devotion of the people spontaneously turned. Mariolatry,—an idolatry which repre-

[1] Halliwell's *Illustrations of Fairy Mythology*, p. 77.

sents a great truth so long as it asserts that the characteristic virtues of manhood are imperfect and incomplete without the womanly tenderness, meekness, purity, but which becomes false and pernicious when it ceases to perceive that even the feminine side of human life has been more perfectly manifested in the comprehensive fulness of the Son's humanity than in any special form of womanhood, — Mariolatry has been represented as characteristic, in its more literal aspects, of the passionate idiosyncrasies of the south; but this, among many other facts, induces me to believe that faith in the Madonna was quite as genuine and intense with the Teutonic as with the Latin races.[1]

The trials for witchcraft supply another test by which we may gauge the poetic characteristics of the people,— the most trustworthy, perhaps, of any, as it owes nothing to the

[1] *Thomas and the Fairie Queen*, Halliwell, p. 55. All sects, however, repudiated the Fairies. Chaucer says that, in his time even, the Catholic friars, "thicke as mottes in the sune-beamme," had dispersed the fairy congregations; while the Protestants attributed their disappearance to the Reformation. In *The Shepherd's Dream* (1612), Robin Goodfellow, admitting in a somewhat *naive* aside the benefits of the Reformation, bewails the downfall of popery and the introduction of tobacco; and Bishop Corbett of Norwich, in his very graceful poem, *The Fairy's Farewell*, repeats the charge.

Witness these rings and rondelays
Of their's which yet remain,
Were footed in Queen Marie's days
On many a grassy plain.
When Tom came home from labour,
Or Ciss to milking rose,
Then merrily went the tabour
And nimbly went their toes,
By which we note the fairies
Were of the old profession;
Their songs were *Ave Maries;*
Their dances were procession.

Hades and Fairy-land seem to have been identified—purgatory being the Catholic compromise—and Pluto and Proserpina were the originals of Oberon and Titania.

Pluto, that is the King of Faerie,
And many a lady in his compagnie,
Following his wife the Queen Proserpina.
CHAUCER, *The Marchant's Tale*, i, 10, 101

artifice of the artist. So much, however, has been written upon them that it is unnecessary to refer in detail to the evidence they furnish, the substance of which it is impossible to mistake. The English supernaturalism of the fifteenth century, as of the sixteenth and the seventeenth, was the vulgar supernaturalism of a people, unimaginative and illiterate, and when forced into practical life, was characterized by the cruel and *commonplace inhumanity* which marks the habitual influence on the heart of a sordid and ungraceful ignorance.[1]

These, and such like, were the superstitious notions current in the fifteenth century, and it is fortunate for us and for them that they have been transmitted to us tried in the fire and permeated by the light of a royal imagination. *Our*

[1] Nothing, for instance, can be conceived more painfully prosaic than the evidence commonly tendered upon these occasions; from beginning to end of the history of witchcraft, I do not believe that a single imaginative narrative occurs. This may, perhaps, be attributed to the fact that the witches were selected, with some well-known exceptions, from the very dregs of the population; old, purblind, half-witted women, utterly ignorant of the world and of everything that did not relate to their own unhappy caste, being the usual victims. The motives and temptations are invariably of the meanest and most literal kind. "Being demanded," is the deposition of Temperance Lloyd, "who and what the said gentleman was who appeared unto her in black, the said examinant answered and said that it was the devil; and confessed, that the devil did ask of her whether she was a poor woman? unto whom she answered that she was a poor woman, and that thereupon the devil, in the shape of a gentleman, did say unto her that if this examinant would grant him one request, that she should neither want for meat, drink, nor clothes; whereupon this examinant did say unto the said gentleman (or rather the devil), In the name of God what is it that I shall have? Upon which the said gentleman vanished clean away from her."

On the scaffold the examination is resumed in this facetious way—

Mr. Sheriff.—In what shape or colour was the devil?

Temperance.—In black, like a bullock.

Sheriff.—Did you never see the devil but this time?

Temperance.—Aye, once before; I was gathering sticks, and he came to me and said—This poor woman has a great burthen, and would help to ease me of it; and I said, The Lord has enabled me to carry it so far, and I hope I shall be able to carry it further.

Sheriff.—Did the devil never promise you anything?

Temperance.—No, never.

Sheriff.—Then you served a very bad master, who gave you nothing. "*And so*," concludes the old reporter, utterly unconscious of the tragic hopelessness of the whole affair,—"*and so was executed.*"—*Proceedings against the Devon Witches.* Howell's *State Trials*, vol. iii.

friendship is not with the "good people," who haunted the old wooden homestead of the rough rustic who fought his way to Richard's side on the field of Bosworth—fought for no good reason that he knew of, but merely from the inherent relish for hard knocks which seems natural to Englishmen—it is with the fairies of the *Tempest* and the *Midsummer Night's Dream.* Yet the two are not separate; for Shakespeare's, however transformed, are the creatures of the popular belief. They are the English fairies, that we cannot doubt. Puck, Robin Goodfellow, Oberon, these are the very names they bore when in the body; Titania only—it is interesting to know—being Shakespeare's own.[1] And yet how they are transfigured. The master appropriates the grotesque and homely forms, "the antiquated gait, the wrinkled visage;" and upon them he lays his hand—

> Marble-thewed,
> Yet passing lightly as a bird—

grandly, indolently, with supreme carelessness indeed, as it seems to us now, but with supreme authority. Oberon's, in the moonlight, becomes a kingly presence. Even with the common fairy he associates more poetic function—

> With female fairies will his tomb be haunted.

And how perfect is his conception of the unmalicious, though laughter-loving Puck, when compared with the coarse, boorish, unmannerly goblin of the old mythology.

That story of the fairy-world which Shakespeare has told us is probably the most perfect poem in the language. There it lies before us in its integrity, a moonlight dream, with the sunset and the sunrise on either side of it. Critics, however, are profane mortals, and this charming pastoral has not been spared. Mr. Hallam, for instance, has asserted that the introduction of the Ass's head is a great artistic blunder, entirely unfitting it for representation. Would Sir Edwin Landseer pronounce the same judgment? I think not.

[1] Spenser (in his *Epithalamium*) is the first, I believe, who alludes to Puck—

> Ne let the Pouke nor other evill sprighte
> Fray us with things that be not.

Even for the requirements of the stage, that patient, sagacious, long-eared face, with its air of preternatural acuteness and solemnity, is, if adequately conceived, admirably suited. The features of any other animal would not answer so well, and for Titania's sake it is needful that some such should be found. For if she really loved the uncouth, unclean, ill-favoured Athenian weaver, the Queen of Faerie would forfeit our regard. The *mésalliance* would manifest so strange a lack of womanly taste and delicacy that we could never forgive her. Even the potent juice of "love-in-idleness" would not explain the infatuation. It is the ass's head that saves Titania from disgrace, and that alone. *That* removes her love out of the actual world, and makes it perilous no longer. There is such a delicious exquisite incongruity in her attachment to the long-eared monster, that we recognise without pain the delusion under which she labours, and, disengaging her at once from any notion of responsibility, are able uninterruptedly to enjoy the charming humour of the situation.

A more considerable objection to the *Midsummer Night's Dream* has been stated in an elaborate paper by Mr. Halliwell. The human action, he says, ought not to have been introduced, as its introduction prevents us from believing in the existence of the supernatural. "The man who wrought that fairy picture, and introduced into it a company of illiterate workmen, without shocking the ideal, what would he not have accomplished had he further isolated his enchantments from the external world?" This criticism appears to me singularly unhappy. Reverse the proposition, and we approach the truth. The introduction of these vulgar and unmannerly boors into that gossamer life does not lessen the sense of reality; on the contrary, it intensifies it. It is the perfect contact with the common and the human that makes it possible for us to believe in the existence of the supernatural. Remove Puck, and Oberon, and Titania from this actual world, and they will "melt into air, into thin air." But bring them back to the fair brakes of wood and meadow-land, through which are visible blue visions of the Ægean, the white marble-veined Athene, the Piræus with its countless masts, and Fairy-land becomes possible at least! Then distribute among them beings of a different order, men

of narrow culture, coarse habits, vulgar literalness, and just in proportion as it is impossible to associate the element of poetic imposture with prosaic clowns, will the conception become real, positive, substantive—a fact and not a fiction. Were we to introduce a poet or a scholar into the fairy conclave, his imagination would at once discredit the genuineness of the scene; but no man can doubt that if Bottom's blind eyes actually saw Titania, Titania must have been visible. If the toilet of the phlegmatic and pedantic weaver was performed by Peas-Blossom and Mustard-Seed, without his being in the least surprised or embarrassed, does not such a circumstance vouch for and attest *their* genuineness and authenticity more authoritatively than any other could do? Thus, the art of Shakespeare is displayed, not by harmonizing "discordant materials," as Mr. Halliwell calls them, but by instinctively recognising that they are *not* discordant, by feeling that Bottom explains and justifies Titania, by apprehending the artistic fact that the introduction of the one communicates to the other a more intense and genuine vitality.[1]

Leaving these informal manifestations of the poetic and imaginative life, we now come to examine the strictly and rigorously dramatic. The early English, as I have said, were a cheerful people, and their national and religious festivals were, at this time, numerous: so numerous indeed, that in the petition addressed, forty years afterwards, by the Commons to Henry VIII., they asked, in consequence of "the great number of holidays with very small devotion that are solemnized and kept throughout this your realm, upon the which many great abominable, and execrable vices, idle and wanton sports, be used and exercised,"[2] that for the future the number should be limited. It was on these occasions that, besides other "idle and wanton" sports, the spectators, with their strong English enjoyment of the stage, eagerly crowded to witness that primitive form of the drama which the Church may be said to have created. Ages before the first Mystery was written, the ballad of the wandering *mynstrel* had been sung

[1] *Shakespeare Society's Papers*, vol. iv., art. 13.

[2] Petition of the Commons, 1533. Froude's *History of England*, vol. i. chap. 2, where the petition is quoted at length.

in the castle-hall, and the exhibitions of the itinerant *jongleur* had taken place on the village common; but these vagrant and desultory performances, though never entirely superseded, were eclipsed latterly by the elaborate machinery which the Church provided. The Roman clergy have been at all times skilful to avail themselves of national instincts, not unfrequently of national vices, and when they discovered that the English were passionately fond of dramatic representations, they at once appropriated the drama. The Church, in those early times, had practically undertaken both the secular and the spiritual education of the people, and the stage was not unwisely selected to play its part in the working out of this important duty. M. Guizot[1] appears to suppose that the existence of a religious drama is characteristic of the devotional tendencies of the German races. The explanation I believe to be more simple: It is quite true that if a Mystery were now to be reproduced—unless by Mr. Charles Kean, who would probably so far succeed in divesting it of its original peculiarities, as to make it palatable to a modern audience—it might not be popular; and that the fact of such representations having once been so, proves that there was a certain aptitude on the part of the spectators for the devotional impressions it was desired to convey. But we must carefully distinguish between exotic culture and spontaneous growth. And the northern drama was a religious drama not in obedience to any "supreme necessity of the human intellect;" but because the priest was the dramatist, and the parish-clerk the performer. The dramatic impulse itself was undoubtedly spontaneous,—the form it assumed must be attributed to the body who originally undertook the management of the theatre, and who naturally selected the themes which formed their special study, and which they deemed of paramount importance. I will consider more at length hereafter the connection which subsisted for several centuries between the Church and the stage; in the meantime, seating ourselves on the walls of the Abbey Church of Chester, let us attempt to revive those pleasant Whitsuntide holidays of 1488, when the Chester Mysteries were played before the authorities, civic and spiritual, in the reign of his most gracious Majesty the Seventh Henry of England.

[1] *Shakespeare and his Times*, by M Guizot, 1821, p. 5

It is a bright morning in the month of May,—such as May mornings used to be in the old time, before the east wind was invented,—and there is a goodly prospect from the walls. Great masses of greenwood stretch across the wide fertile plain, through which the Dee weaves its tangled meshes. On all hands rise, sombre in their isolated supremacy, the feudal castles of the great northern nobles. Far in the west the stronghold of "the warden of the Marshes," among whose inaccessible turrets the golden eagle has its eyrie,[1] creeps panther-like along the green and wooded precipices of Beeston. The Welsh mountains, wrapt in their veil of blue morning mist, seam the southern horizon, and on the other side the surf of the Irish Sea breaks whitely along the desolate sands of the Wirrol, and the low-lying thinly-peopled marshes of the mainland.

In the fifteenth century extensive tracts of country, which are now reclaimed and cultivated, lay within the sea-margin, and a wide expanse of blue water must have been distinctly visible from the walls of the ancient Cestrense. The city, which, by the retreat of the tide, has been left stranded in the interior, was at one time literally a seaport. "Great stores of shippes," we know, arrived at it by the Dee, when it had become the most important town on the Western frontier; and before that period the salt water perhaps washed its walls. During the reign of Edward III., at least, the Abbot of Chester claimed *wrecum maris*, the wrecks cast by storms upon his lands of Chevely and Huntingdon—lands which are now many miles distant from the tideway. The Wirrol, which skirted the northern margin of the estuary, was a wild and desolate region, not yet "disforested," and inhabited by a few savage and ferocious outlaws. The nature of their pursuits is vividly set forth by the frequent entries in the local histories, which relate to "the pirates of the Worral;" and the terror which this wild and plundering race inspired probably accounts for Leland's anxiety, fifty years afterwards, to avoid the inhospitable locality. Even towards the close of Elizabeth's reign their social condition does not seem to have improved, and as late as 1585 we find "sixteen pirates executed for taking a ship out of the Worrol." This desolate Chersonese

[1] Harrison (p. 225) says that the eagle built on a castle near Chester.

approached to within a few miles of the town, from which, it was separated by the waters of the Mersey, whose present channel was originally clothed with an ancient forest of oak, scarcely more impenetrable, however, than the dense thicket of masts which lines the wharfs of the modern Liverpool.[1]

The city itself had witnessed many of the fluctuations of fortune. Its position as a frontier stronghold always made it important. Before the Conquest it was the scene of perpetual conflicts between the Cymry and the Saxons. The dictatorial power conferred by William on the Constable of Chester was justified by the unsettled habits and the incessant hostility of his Welsh neighbours, who, even by Edward I., were little more than nominally subdued. Since that time it had formed the usual rendezvous for troops, whenever an expedition was meditated against the Scotch or Welsh border; and during the bloody conflict which the death of Richard terminated, as its authorities arrayed themselves on either side, the red rose of York, the white-swan badge of the House of Lancaster, were alternately dominant in the city. These circumstances of strife and danger had sensibly impressed their characters upon its face, and its skilful position in a curve of the river, its fortified castle, its massive ramparts, spoke of a garrison dangerously exposed, frequently assailed, continually on the alert. It is interesting to know that the precipitous terrace, with its arched arcade, which rises on either side of the street—"a singular praise or property to this city," as an old Chesterman has it, and which renders its thoroughfares as picturesque to the modern traveller as those of Berne or Bologna—was originally erected to enable the inhabitants on more equal terms to defend their town against the rapid falcon-like swoop of the guerilla horsemen of the Border.

Around the Abbey-church, and along the northern and eastern walls, stretched the long lines of the conventual buildings, which then occupied more than a fourth of the whole town. The original abbey was of great antiquity, having

[1] *Memoir of the Rapid and Extensive Changes that have taken place at the entrance to the River Mersey*, by Jos. Brookes Yates, Phil. Soc. Liverpool, 1843. Mortimer's *History of Wirrol*, 1847. "Lyrpole *alias* Lyverpole," says Leland, "a pavid towne, hath but a chapel. At Lyrpole is small custume payid that causeth marchantes to resort."—*Itinerary*, vol. vii.

been founded, it was said, in 666, by Walperius, king of the Mercians, for his fair and devout daughter St. Wertburg, from whom it derived its name. Very beautiful to those old monks in their lonely stronghold must have been that white vision of pitying womanhood, leaving meekly her queenly state for the bleak austerities of the cloister! The corroded, copper-coloured, time-stained edifice with which we are acquainted, was then being erected. Edward I. had granted the monks "venison" from his forests of Delamere and Wirrol to assist them in rebuilding their church, abbot after abbot had striven for two hundred years to bring the good work to a close, and the present occupant of the chair, Simon Ripley, had undertaken the nave, the southern transept, and the central tower. The massive and gloomy pile, however, still remained unfinished, and the Reformation prevented the completion of the great cross of the cathedral according to the original design. Beyond the high wall which fronted the north side of the building lay the North-Gate, a spacious piazza, where the booths of the merchants who attended the Abbots' Fair were periodically established. Thatched with reeds, which the monks were empowered by charter to gather from Stanlaw Marsh, and of the very slightest architectural construction, these stalls contained every necessary, and almost every luxury, of that primitive life; and the itinerant trader, who wandered from fair to fair, often carried in his leathern wallet what would have been reckoned a fortune by any baron in England. The booths, however, have been cleared away this May morning, and a motley multitude—friars, pardoners, belted nobles, honest rustics, wild-looking scamps from the marshes of the Wirrol and the Welsh border—wait eagerly the approach of the pageant. The whole town indeed is crowded with visitors. Some have come to meet their friends; others to purchase food and raiment, armour or weapons, whatever they may require during the next twelve months; others, of a more devout turn, to avail themselves of the "one thousand days of pardon," granted by Clement, Bishop of Rome (not to mention the additional month guaranteed by "the Bishop of Chester)" to whoever should resort "in peaceable manner with good devotion to heare and see the sayd playes from tyme to tyme,"—an effective and characteristic mode of soliciting public support. Along the broad wall where we are seated the monks

themselves are arrayed,—stout, ruddy, hale, and honest gentlemen, if one may judge of them by their looks. Which, perhaps, it may be as prudent not to do; for I find, in a collection of old trials, that of "dyvers wymen," who, during the previous summer, had been indicted and condemned as "paramours of the monks of Chester,"—a creditable proceeding in itself, perhaps, but which looks to us now just a little like punishing the wrong parties.[1]

Of what may be called the stage-business of this early drama it is difficult to obtain any ample or trustworthy account. The more characteristic of the meagre particulars which have been preserved, may, however, be condensed into a brief paragraph.

The Whitson Plays were acted at Chester, seven or eight on each day, during the Monday, Tuesday, and Wednesday of the Whitsuntide week, by the various crafts in the city, to each of whom a separate mystery was allotted. The drapers, for instance, exhibited the Fall of Lucifer; the water-carriers of the Dee reproduced the Deluge; the cooks had the Harrowing of Hell. The performers were carried from one station to another by means of a moveable scaffold, a huge and ponderous machine, mounted on wheels, gaily decorated with flags, and divided into two compartments, the upper of which formed the stage, and the lower, defended from vulgar curiosity by coarse canvas draperies, answered the purposes of the green-room. The performers began at the Abbey gates, where they were witnessed by the dignitaries of the Church; they then proceeded to the High Cross, where the mayor and the civic magnates were assembled; and so on throughout the city, until this motley history of God and his dealings with man had been played out.

The production of these pageants must have been attended with considerable outlay; "to all the city," says the old proclamation, "follows labour and cost." Probably, the

[1] Webb's *Description*, 1620. Archdeacon Rogers, 1581. King's *Vale Royal*, 1656. *The Life of the Glorious Virgin St. Werburg*, London, 1521. Ormerod's *Cheshire*, 3 vols. 1819; the most magnificent of the local histories. *Royal Visits and Progresses to Wales*, etc., by Ed. Parry, 2d edition, 1851.

expense of each Mystery was not less than fifteen or twenty pounds, estimated according to the present value of money. The dresses had been originally obtained from the churches, but the practice seems to have occasioned much scandal among the stricter clergy (William of Wykeham, Bishop of Winchester in 1384, denounced the priests who were in the habit of lending holy vestments for this purpose as guilty of sacrilege); and the guilds had been latterly obliged to provide the dresses as well as the other properties for themselves. The old registers of the trading companies contain many entries relating to these expenses, some of which are curious, and many not a little profane. Our Lord was commonly represented wearing a gilt peruke and a sheep-skin coat, which was either painted or brilliantly illuminated. Lucifer appeared in his stereotyped costume, horns and a tail, cloven feet and a red beard, illustrating, in the latter particular, the clumsy Pluto of the *Gierusalem*, and in the others the grotesque conception of the *Rennaissance*. The item, "Payd to Wattis for dressing the devil's head," seems to indicate that an accomplished *artiste* was specially engaged to perform this delicate and responsible duty. The close connection between Judas Iscariot and the evil principle was typified, moreover, by *his* red hair, against which colour, latterly modified into the bewitching auburn of the Venetian artist, the illiterate in these days entertained a curious antipathy. Besides the expenditure on dress, the players had to be remunerated for their attendance at the rehearsals as well as at the public performance. The pageant accounts contain many entries which relate to this subject—"*Payd to the players for rehearsal—Imprimis, to God,* iis. viiid.; *itm. to Pilate his wife,* iis.; *itm. to the Devil and Judas,* is. vid."—only eighteenpence, as it was probably considered inexpedient to incur much outlay on such disreputable characters. There was, indeed, a regularly graduated scale of remuneration; so that while Herod and Pilate fared sumptuously every day, the cock that crew when Peter denied his Lord starved on a miserable pittance—"*Payd to Fauston for coc-croying,* iiijd." This Fauston seems to have had a kind of available talent, for we subsequently meet him engaged in a different department of the drama—"*Payd to Fauston for hanging Judas,* vd."

Nor were scenic effects altogether neglected. "The cross, with a rope to draw it up," and "two pair of gallows," are prominent items in the old accounts. But it was on "hell-mouthe" that the stage artist lavished his resources, and that he depended for his principal points. "*Payd for mending of hell*, ijd.; *itm. for painting of hell-mouth*, iijd.; *itm. for making of hell-mouthe new*, is. ixd.; *itm. for keeping fire at hell's-mouth*, iiijd.; *itm. for setting the world of fyer*, vd. (this last was another of Fauston's performances), are entries which occur upon every page. "Hell-mouthe," according to the old authorities, and as it is preserved in the early engravings, represented the head of a devouring dragon, whose red eye-balls glared fiercely on the spectators, and whose open jaws disclosed a murky cavern, wherein were stationed "a great company of devils," and from which issued the despairing groans of the tormented. This diabolical contrivance in behalf of the better life, probably proved a source of emolument to the Catholic clergy, and in that light can be intelligibly understood; but why, after pardons and masses have been abolished, "Hell-mouthe" should be perpetuated as the supreme motive of Christian conduct, does not at first sight appear.[1]

Most of the forms of our primitive literature are steeped in an atmosphere of romance. A nation, in the spring-time of its years, expresses its cheerfulness, if rudely, yet with boisterous animal delight. The early drama, however, is destitute of this animated simplicity. Throughout the Mysteries we desiderate the bloom and perfection of the child-life, the rosy health and the exuberant vitality of a people girding up their loins for the race, playing with the materials of life, rejoicing in those bright lines of dawn wherein the traveller can detect no trace of the noontide toil. Written by monks, who often did little more than the modern English dramatist does—translate from the French,—a Miracle-Play is merely a portion of the Scripture narrative manufactured into a doggerel drama. A plain and homely exposition, it is, like the lesson in a school-book, designed to teach, and makes no pretensions to literary refinement. Yet, even in the most prosaic, we are sometimes

[1] Sharp's *Dissertation on the Coventry Mysteries*, 1825. *Illustrations of the Manners and expenses of Ancient Times in England*, 1797.

arrested by a gush of genuine poetic feeling, welling like a clear spring through the thick crust of clownish humour and monkish superstition, as though the human heart beat underneath after all!

The Miracle-Play has been severely condemned on moral and artistic grounds, more especially by those who are not perhaps best qualified to judge of such matters. Of course, if we care to study the literature of Catholicism, we must come prepared to encounter many Catholic legends and superstitions; as indeed we do. In the Mystery its fictions continually recur. There is the cherry-tree that blossomed and bore fruit at Mary's desire, and the elder-bush on which Judas hanged himself. The forbidden fruit sticks in Adam's throat as he attempts to swallow it, and is the cause of the lump in the man's gullet, which continues even to this day. The Sybil—during the middle ages a familiar Catholic influence,

> "Dies irae, dies illa
> Teste, David, cum Sybilla,
> Solvet seclum in favilla,"—

prophesies, before Octavian, of Jesus and the judgment. A drama is appropriated to the Assumption of the Virgin, and another to the Harrowing of Hell; the latter a dogma of Rome, no doubt, but preserved in England long after the Reformation, and condensed by Spenser into one of his terse couplets—

> "And thou who harrowed hell with heavie stour,
> The faulty souls from thence brought to thy heavenly bower."[1]

Few of these legends, however, can offend even the most fastidious taste; and it is consequently against the *buffoonery, indecency, and profanity of the Miracle-Play, in its treatment of the Scripture narrative*, that the charge has been specially directed. It is said that the men who composed such dramas must have been utterly devoid of any religious impressions, and that the representation of such spectacles must have had an injurious effect on those who witnessed them. Many absurd, profane, and indecent passages can no doubt be

[1] *The Faerie Queen*, canto x. stanza 40.

selected; but even if these had been more numerous than they are, I am doubtful whether it would be right at once to assert the large conclusion to which they seem naturally to point. The question is indeed one of the greatest intricacy, for, in settling it, many conflicting issues require to be adjusted. I will consider it in reference to the three charges I have indicated—Buffoonery, Profanity, Indecency.

That a good deal of what we call buffoonery was introduced into this drama cannot and need not be disputed; and some specimens of the burlesque spirit in which the Scripture narrative was treated will prove characteristic, and enable us to form a more accurate opinion on the point at issue. In the "Fall of Lucifer," the Deity "descends from his throne and goes out," and during his absence, the ambitious archangel, like a mischievous school-boy, appropriates the master's seat, for which he is rusticated from heaven. Milton is said to have founded some of his most noble pictures on the rude groundwork of the Mysteries; there is, for instance, a curious entry in the Coventry accounts, which alludes to "the Mother of Death;" and it is quite possible that in some cases he may have been indebted to them; but the magnificent Lucifer of the "Paradise Lost,"

"Hurling defiance toward the vault of heaven,"

bears indeed little affinity to the poor and spiritless fiend of the religious drama. The *Processus Noe cum filiis* gives a rude but graphic account of the circumstances attending the flood. The principal character in it is Noah's wife, who is not very favourably or gracefully conceived. Positive, sensible, and matter-of-fact, she has adopted the Baconian method of investigation, and is very vehement in the expression of her disgust at the ark. Her husband, she affirms, is neglecting his business and sacrificing his family for a capricious and chimerical crotchet. When all the needful preparations have been concluded, she swears by the Virgin Mary that she will never enter the ark, and Noah is ultimately forced to make use of his whip. This shrewish personation of the patriarch's wife is very common in the old plays, and seems to have been considered, both by

audience and author, as eminently comic. Balaam and his Ass was another favourite topic; and the conversation between the two, in which the ass expostulates with great force, is not destitute of humour—

> "Am not I, master, thine own asse,
> To bear thee whither thou wilt passe,
> And many winters ready was?
> To smite me it is shame.
> Thou wot'est well, master, pardy,
> Thou had'st none ever like to me,
> Ne never yet so served I thee,
> Now am I not to blame."

The play of *The Shepherds* introduces the nativity of the Saviour. After a prolonged conversation upon the troubles of their domestic life, the shepherds, who are watching their flocks by the starlight, fall asleep, and are forthwith informed of the birth of Christ. One of their sheep having been stolen during the time of the vision, the recovery of the property, and the capture of the thief, form a very ludicrous episode. Having beaten the rogue heartily, they again lie down, when the star in the east appears, and *Angelus cantat gloria in excelsus Deo, et in terra pax hominibus bonæ voluntatis.* According to another edition of the same Mystery, the shepherds have a quarrel and a fight just before the appearance of the star. Being thereby admonished, they go and present themselves and their gifts at the stable in Bethlehem. These gifts are coarsely and absurdly burlesqued; one of them, for instance, being a nut-hook, so that, says the donor to our infant Lord—

> "To pulle down apples, peares, and plombes,
> Old Joseph shall not need to hurt his thombes."

The buffoonery, exaggeration, and total absence of all dramatic propriety which are found here are even surpassed in another, entitled *The Oblation of the Kings.* King Herod, who is introduced into it, swears by the devil and "his cousin" Mahomet, and rewards the councillor who suggests the slaughter of all the children in Bethlehem by promising to make him "the Pope." This primitive founder of the papacy afterwards dies in great agony; and at the end the

Protestant reader is gratified to learn that "the devil carries him away."[1]

Such buffoonery is certainly amenable to criticism. But we must remember, in the first place, that it was introduced to amuse the spectators, which it no doubt did; the audience listening, says an old writer, "*nunc silentes, nunc cachinnantes;*" and moreover, that many of the particulars which seem to us most ludicrous were originally spoken in perfect good faith. The premeditated burlesque is often the least grotesque; to the modern reader it is the genuine and exquisite *naïvète* indeed that proves most extravagant.

Further, it is not the characteristic machinery of Christianity that is made use of in this connection, but the subordinate scriptural characters—Noah's wife, the Shepherds, Herod, Balaam and his Ass. Unless we require the Bible narrative to be preserved inviolate, and removed entirely from the sphere of secular art—an isolation indeed demanded by certain people, who habitually confound the common and the unclean—I do not see that we can consistently object to the principle which this connection asserts,—a principle which lies at the very root of the English character, and of the great English Drama. In the French classic tragedy any feeling which is not in harmony with the central emotion is scrupulously avoided; a jest in *Phèdre* or *Athalie* would be regarded as an unpardonable impertinence, insulting the solemnity of the occasion. To the Englishman, who looks the world full in the face, the law is different. In

[1] *The Chester Plays*, edited by Thomas Wright, 1843. *Ludus Coventriæ*, edited by J. O. Halliwell, 1841. Collier's *History of Dramatic Literature*, 3 vols., 1831. Many miscellaneous contributions to the early literature of the drama have been recently published, and an immense mass of undigested *materiel* has been thus collected into an accessible shape, chiefly through the medium of the publishing societies. To Messrs. Dyce, Collier, and Halliwell, those who take an interest in the subject are specially indebted. It is much to be regretted that the valuable library of the Faculty of Advocates in Edinburgh, is so deficient in the literature of the drama. Of the voluminous literature of *Euphuism* there is scarcely a single volume. It possesses no early editions of the works of any of our greater dramatists, and, excepting Mr. Dyce's edition of Marlowe, none of Mr. Pickering's (now) invaluable reprints. A small annual contribution, continued for a few years, would serve to put this department in tolerable efficiency.

his wide and ample estimate of life, the comic appears side by side with the tragic; his drama goes on with courageous resoluteness, shining, like the sun, equally on the evil and the good, the noble and the ignoble, the terrible and the grotesque; and to his mind there is no incongruity in an association which has existed since man was created. That by sanctioning such an innovation he transgresses the stereotyped formalities of art is to his strong practical sense a matter of perfect indifference; he knows that he relishes the Shakespearian stage, not in *spite* of its disregard of the unities, but because (whatever may have been true of the Greeks, whatever may be true of the Frenchman), in so far as he is concerned, it is quite right that they should be disregarded. It is therefore interesting to learn that this striking idiosyncrasy of the national temperament is observable in the earliest developments of the national imagination. We have not to wait for Lear or Macbeth ere we find grief and joy, pathos and humour, the king and the clown mingling in the motley pageantry of the stage as they mingle in the motley pageantry of life. On the contrary, in the most primitive form of our drama—a form for such a purpose peculiarly unpropitious—the germ of this wise, unsectarian, and thoroughly English insight may be detected. That the early drama was a religious drama is of course no argument against the practice. Religion has no right to separate itself from the facts of life, and a spiritual is just as pernicious as a bodily asceticism. If it is not impossible that Noah's wife was a shrew—as matrons have been, undoubtedly, both before and since the Deluge—surely it cannot detract from the practical value of the Deluge as a scriptural fact to represent her as such?

And as this profound necessity for the exhibition of real life explains and justifies the comic element which we find in the English as distinguished from the French Mysteries, it also explains the anachronisms, in reference to time and place, which abound throughout the former. Noah's wife might so far forget what was due to herself and her chronological position as to swear by the Virgin Mary; what cared the spectators for that? Such expressions they used to each other every day, and the employment of the phraseology

of their familiar life on the stage only intensified the impression of its reality. The play of The Shepherds was the most popular of the series; at Chester it was frequently acted by itself; when any august personage visited the city he was certain to be invited to witness it. And yet it is in its incidents the most outrageously extravagant of them all. Wherein lay the fascination? Mainly in this, that the Syrian Shepherds represented English rustics; a fact which accounts for the special value it continues to retain to us; preserving, as it does, a rude but elaborate picture of the old country life of England. We hear about the shepherds and their sheep; the distempers from which the flocks suffered, and the remedies—such as hot tar for the rot—which were considered efficacious; how the women sewed their untanned leathern socks with crows' feathers instead of thread; how the men had green cheese and sheep's head for their dinner, and how they washed it down with sour milk and Halton ale. It was most improbable, no doubt, that a Syrian shepherd, during the reign of Tiberius, could have obtained a supply of the latter article — most improbable; but the audience, for their part, were perfectly content, since they were thereby brought into more direct contact with human life than they could have been although chronological accuracy had been scrupulously observed, and the manager, in the printed preface to his play, had presented them with his classical authorities.[1]

The next charge is a delicate one, on which, from our modern spirit of prudery, it is almost impossible to touch. I must, however, be permitted to allude to it in passing. Dr. Marriot, in the preface to his collection of Miracle-Plays (Basel, 1838), asserted that an exact representation of the primitive state of our first parents in the Garden of Eden was exhibited on the English stage as late as the close of the sixteenth century. Though this modern instance has been disputed, it seems difficult to doubt that such representations actually did take place at an earlier period. John of Salisbury[2]

[1] *The Winter's Tale*, as represented at the Princess' Theatre, with Note Historical and Explanatory, by Chas. Kean. John K. Chapman. 1856.

[2] *De Nugis Curialium*, lib. i. cap. 8. Mr. Dyce has satisfactorily disposed of Dr. Marriot's assertion, which rests upon a passage in an old

expressly alludes to the indecent attire of the actors; and the stage directions to the old Mysteries supply internal evidence which appears to substantiate the charge. In the first of the Chester series, we are informed that Adam and Eve *stabunt nudi, et non verecundabuntur*, and the fact appears still more indisputably from a subsequent passage which refers to the disposition of the fig-leaves. Again, in the crucifixion, this direction occurs—*Tunc spoliabunt Jesum vestibus, et stabit nudus quousque sortiati sunt;* and that he remained unclothed till the conclusion is evident from what "Caiphas" says afterwards—

> "Men for cock's face,
> How long shall Pewdreas
> Stand naked in that place?
> Go traile him to the tree."

These specimens are selected from the Chester Mysteries; the Coventry furnish illustrations of the same kind, which, however, it is unnecessary to quote. Such an accumulation of evidence undoubtedly makes out a strong case; it is difficult to see how it can be explained away. Still I accept the statement very reluctantly, and not without a hope that, were our information more ample, the conclusion to which it forces us might be avoided. Reluctantly; for how are we to reconcile the fact, if fact it be, with our conceptions of old English purity? The liberty which is extended to the sculptor, who, in the calm and tranquil exercise of his art, represents the unveiled and unblushing Aphrodite, will not, for obvious reasons, be extended to the flesh and blood of the stage, except by a very primitive or corrupt society. In the present case, no foreign motive can be assigned for the introduction of such gratuitous immorality; and as any exhibition that takes place on the popular stage must be in accordance with popular habits, and popular associations, it seems to me quite clear that if this indecency was habitually tolerated on the platform, it must have been previously tolerated in the household. If the case be made out, we are certainly forced to conclude that there was not throughout

play, entitled, *The Travailles of the Three Brothers*,—a passage, the import of which is so obvious, that it is curious how even an editor could have misunderstood it.—*Kemp's Nine Daies Wonder*. Camden Society, 1840.

the ordinary relations of English life the fastidiousness, the scrupulousness, the horror of the nude, which are now regarded, whether justly or unjustly, as characteristic of a sound and temperate society.

That there is in this drama much practical *profaneness* those who are best acquainted with its history will be least inclined to assert. A few specimens may, no doubt, be selected for rhetorical or argumentative effect; but there are few, I venture to say, where the blasphemy is intentional or premeditated, and none in any measure approaching, in revolting outrageousness, the passages which Mr. Lewis, in his characteristic life of Goethe, has translated from an old German play.[1]

The last, and perhaps the most serious objection, applies, therefore, not so much to the manner in which the divine is introduced, as to its introduction under any circumstances, not so much to the precise practice as to the abstract principle. This simplifies the matter, and leaves for us a plain issue to decide upon. Was it or was it not expedient that the Creator should be introduced upon the stage? Was it or was it not right that the principal events in the life of our Saviour should be presented in the religious drama? With all respect for the scrupulous piety of those devout souls who are shocked and distressed when they peruse a Miracle-Play, I think we are entitled to answer that it *was* expedient, that it *was* justifiable.

The Mystery, as we have seen, was employed by the clergy to teach the doctrines of the Church. It was a characteristic portion of the secular economy of the Roman Catholic system, perfectly in harmony with the theory upon which that system was constructed. And we are not entitled to say that that system has failed; it did not fail when brought into contact with a gross and sensuous society; and with a view to such a society we must remember that it was originally designed. Roman Catholicism now degrades our conception of the divine economy; but Roman Catholicism succeeded at a time when the naked simplicity of Puritanism could have done nothing. And the rude sketches of the Mystery did undoubtedly convey

[1] Lewis' *Life of Goethe*, ii. 288.

to a large class of an illiterate population any definite conception it possessed of the divine government of the world.

But it is said that the knowledge thus coarsely taught could not have proved efficacious. Now it is no doubt perfectly true, that, in certain cases, the direct homeliness of the narrative may have introduced into the intercourse between man and his Maker an undue and perilous familiarity. It is difficult to believe that the writer who habitually entered such items in his day-book—"Pay'd for a payre of gloves for God; Pay'd for gilding God's coat; Divers necessaries bought for the trymmyng of the Father of Heaven,"[1] —did not thereby contract a grossness of conception in regard to the attributes of the Divine Being which must have exerted a pernicious influence over the functions of his moral life. This, however, is an extreme case; and the *audiences* at least were not exposed to the same temptations. The story was rudely told, but, in its essential points, it was told with exact veracity. Though God "rose up from his throne, and went out," yet they, in their strong Saxon simplicity, did not the less believe that he remained the Almighty Governor of the world. They were required to accept the narrative of our Lord's earthly passion in its most perfect homeliness; but the great lesson which it taught of a love stronger than suffering and triumphant over death did not come to them with a whit less force. Nay, it is quite possible that they thus obtained an insight of more thorough practical value into the significance of that life than any we now retain. For would the literalness and precision of the narrative shock us so much if we did not make the whole existence of our Redeemer something essentially different from that which it was, and by overlaying it with formalities and abstractions of our own, deprive the divine example of the man Christ of its true practical homely helpfulness? Our ancestors did not extinguish that noble career of charity and self-sacrifice in a theological dogma, and perhaps they were none the worse, either morally or spiritually, that they found in Revelation the toil and triumph of a human spirit, the profound experience of a man who, tempted like as they were, was yet without sin. One is often inclined to conclude, from the prevailing tone of our

[1] Sharp's *Dissertation on the Coventry Mysteries.*

theological literature, that the thirty years witness to the truth were just so many years thrown away;—as if our Lord lived solely that he might die; as if the arbitrary fact of the divine martyrdom, apart from the richfulness of the divine life of which it is the highest expression, would have served to release man's heart from the thraldom of the devil; as if the virtues of Christ had no real or vital connection with the public morals of Christendom. We have thrown our religion and every thing else that concerns us into schemes and doctrines, and have utterly forgotten that there was really some human truth in them once. After all, there may be worse teachers, even from the pulpit, than the rude realists of the early stage.

But it is quite another question, whether we are now entitled to reproduce the characteristic forms of the Mystery, and one much more difficult to decide. The *Prologue in Heaven* in Goethe's *Faust*, and *The Nativity*, in *The Golden Legend*, are well-known specimens of recent imitations. Mr. Longfellow cannot help adding to the old drama the grace, purity, and refinement of modern poetry; but he cleverly preserves many of its familiar features—its simplicity, its profane directness, its homeliness both of thought and narrative. Goethe, on the other hand—the greater artist—thoroughly realises the situation, and the Beelzebub of the primitive stage could not address the Almighty with more perfect composure than Mephistopheles does. This is even somewhat too much the case perhaps. In the real zest and relish with which the author of *Faust* treats the profane, there is something more than the historic impartiality of the artist. And in a matter of this kind we are entitled and called upon to judge the modern much more rigorously than the mediæval playwright. The most profane of the Mysteries may be read without pain, if we recognise the simplicity of purpose, the honesty of the motive;

> For never anything can come amiss,
> When simpleness and duty tender it.

But the modern artist is deprived of the refuge of sincerity. He feels that to him and to his age many mediæval forms, many antique types of thought, have become, in a certain

sense, profane; and he knows that it is so when he writes. So that the answer to the question must ultimately rest on the intrinsic worthlessness or worthiness of the subject itself. "Many accounts there are in history," says Sir Thomas Browne, "scandalous unto Christianity, and even unto humanity, whose not only verities but relations honest men do deprecate. We desire no record of such enormities; in things of this nature silence commendeth history."[1] The Mystery, however, can hardly be included, with any show of justice, in the Index Expurgatorius of history. It is not in its own nature so objectionable as imperatively to force us to exclude it from any authentic or artistic reproduction of mediæval life. And I believe most candid readers admit that Mr. Longfellow, in a work which restores the motley activities of that life better than any other work I know, has satisfactorily shown that the old play may be handled so tenderly, and yet so honestly and conscientiously, that it need not shock the scruples of the most fastidious Puritan.

Such was the Mystery, which for three hundred years held undisputed possession of the English stage. It ceased to be generally represented early in the sixteenth century, but it was not entirely discontinued till a much later period. In 1567, the Whitson Plays, with the exception of those deemed "superstitious," were acted at Chester, in spite of an inhibition from the Archbishop of York; in 1575, the mayor, Sir John Savage, again set at defiance the clerical interdict; and in 1577—and this was probably the last official representation—the play of *The Shepherds* was acted at the High Cross before the Earl of Derby. But if we may trust the terms and contents of a play-bill printed in the beginning of last century, the Miracle-Play was preserved in England, though under a very different form, till the reign of Queen Anne:—"*By Her Majesty's permission. At Heatly's Booth, over against the Cross Daggers, next to Mr. Millar's Booth, during the time of Bartholomew Fair, will be presented a little Opera, called The Old Creation of the World, newly reviv'd—with the addition of the glorious battle obtained over the French and Spaniards by His Grace the Duke of*

[1] Sir Thomas Browne's *History of Vulgar Errors.* Book viii. chap. 19.

Marlborough—compleated with the Merrie Humours of Sir John Spendall, and Punchinello!"[1] This is the closing scene in the career of the religious drama.

"To such base uses may we come, Horatio!"

The Moral-Play—the introduction of which can be traced to the reign of Henry VI.—followed the Miracle-Play, but for many years the two flourished together; the new form, under the patronage of the Court, continually gaining ground upon its predecessor, especially among the more cultivated and studious classes. In the Moral-Play the vices and the passions were personified. The cardinal virtues and the deadly sins strutted "their little hour" upon the stage. One characteristic influence was transmitted from the Mystery,—"Sathan the Dyvill," whose assistance could not well be dispensed with, and who appeared accompanied by the "Vice," a sort of envenomed parasite. By slight gradations the Moral-Play was modified into the Interlude, a work wherein greater latitude of thought and subject were permitted, where abstractions were thrown into the background, and the real brought prominently forward. The Interlude was the favourite Court entertainment during the reign of Henry VII. and of his son, both of whom relished the drama, a taste which they transmitted to Elizabeth. Several companies of actors were attached to their service, the "Players of Interludes," and the "Gentlemen of the Chapel," being those of whom the most authentic information has been obtained. John Heywood, "Player of the Virginals" to King Henry VIII., at a half-yearly salary of £6 : 13 : 4, and John Skelton, the poet-laureate, are the only composers of Interludes whose names are now remembered. Heywood was a man of considerable endowments, and his plays are characterised by so much spirit, vivacity, and humour, that he is entitled to be considered the Father of English Comedy. Skelton is better known as a poet than as a dramatist. "Magnificence"—the

[1] The contents are such as these:—"The Creation of Adam and Eve;" "The Intrigues of Lucifer in the Garden of Eden;" "The Three Wise Men of the East."—*Strutt's Sports and Pastimes.* Ed. Hone, p. 166.

only Interlude of his which has been preserved, although it is known that he composed several—has nothing to distinguish it from the mass of such productions. But as a poet it may be questioned whether he has been sufficiently appreciated. There is, undoubtedly, in his works a vast amount of coarse and offensive buffoonery; but, attached, like Rabelais, to the principles of the reforming party, and suspected by the authorities of the Church in which he occupied a subordinate position, this may have been in part assumed to cloke the daring spirit of inquiry which would not have been permitted to a grave and moderate thinker. When we penetrate beneath the crust of extravagant burlesque, we reach a vein of sound sense, lively humour, bitter, sometimes even brilliant, wit. The whole character of the man, indeed, is strongly marked and graphic. He hates quite as warmly as he loves, and that he loved may be gathered from the passage in which old Anthony Wood tells us that he was suspended from his office, "having been guilty of certain crimes, as most poets are." The things and people that he hates are manifold—the Scots, the Mendicant Friars, the Cardinal Wolsey, Lily the grammarian. And of all things and people whom he hates he speaks his mind with a boldness rare in those days. The man is perfectly fearless. He is always at war with Wolsey; is always denouncing the pride, arrogance, ostentation of the great minister. Wolsey, however, I can believe, rather liked the laureate,—as he did any thoroughly strong and honest man,—and coldly tolerated that mosquito-like hostility, ready to crush it at a moment's notice whenever it became really dangerous. And until he got hold somehow of Skelton's masterly piece of abuse, "*Why come ye not to Court?*" the wily Cardinal was content to disregard it. But by that time the situation had become difficult; the poem exactly expressed the feelings of the most numerous and influential class of Henry's subjects, who abhorred the minister quite as much for "his base progeny, his greasy genealogy," as for his inordinate ambition and masterly insight into European politics; and the crisis had arrived when the nuisance must be briefly and finally put down. So Skelton was forced to fly to the sanctuary at Westminster (from which his animated pasquinades against "The Sorcerer" were indefatigably dis-

charged into the city), there to await the fall of that sagacious and confident ambition. Altogether, as I have said, the laureate is a likeable man. Sharp, scornful, and bitter, no doubt,—as such a man could not then well help being, especially if within the Church, and hating the scandals of the Church,—but, at the same time, blunt and honest; there is humour underneath those shaggy eyebrows, and tenderness, even, of a rough homely cast; a tenderness, however, that will grow indignant and passionate when the conviction dawns upon him that God's most righteous law of love,—quite as needful as a law of life, then, as now,—has been to him and to his brethren tainted and defiled by the mischievous ordinance of man.[1]

Of the Moral-Play, little more requires to be said, and that mainly in the way of illustration. Of the very considerable number that have been preserved and published, *Everyman*, and *Lusty Juventus* are probably as complete and characteristic specimens as we could well select. *Everyman*, published early in the reign of Henry VIII., is, in many respects, a very effective allegory, intended to depict the transitoriness of all earthly blessings:—

> Man in the begyinning
> Look well and take good heed to the endying,
> Be ye never so gay;
> Ye thinke sinne in the begyinning full swete,
> Which, in the end causeth the soul to weep,
> When the body lyeth in clay.

God finishes a soliloquy upon the justice of his government of the universe, with which the play opens, by despatching Death to summon *Everyman*—the representative of human life—to his presence:—

> *God.* I must do justice
> On every living creature without fear.
> Where art thou Death, thou mighty messenger?
>
> *Death.* Almighty God, I am here at thy will,
> Thy commandments to fulfil.

[1] *Household Book of Henry VIII.* *Skelton's Works*, edited by Rev. A. Dyce. Anthony Wood's *Athenæ Oxonienses*, i. 50. There is a portrait of the "famous old poet" in Sir Egerton Brydges' *British Bibliographer*.

God. Go thou to Everyman,
And tell him, in my name,
A pilgrimage he must on him take,
Which he in nowise can escape.
And that he bring with him a sure reckoning,
Without delay or any tarrying.

Death (whose introduction here seems to disprove Mr. Douce's assertion that the last enemy was never represented in the old religious drama), courteously allows the affrighted sinner leisure to discover whether any of his friends will undertake to accompany him. Friendship, Kindred, Goodes, Beauty, Strength, one by one forsake him, when they learn by whom he is summoned, until his "Goode Deedes," "who is so weak that she cannot stand, verily," is alone left with him. The rest of the play, till within a page of the close, consists of an exposition of several of the more prominent doctrines of the Roman Catholic Church, not omitting that doctrine of all catholic churches down to the present day, which sets forth the privilege of contributing to the necessities of the saints, and the other ecclesiastical office-bearers. Having received the sacrament, Everyman, probably exhausted by the weight of this protracted discourse, gives up the ghost in a penitent and edifying way; while his medical attendant informs us, in manner of epilogue, that, when a sinner dies, nothing

"Save his good deedes with him doth he take;
Which, if they be small,
Before God he hath no help at all."

Lusty Juventus was written during the reign of Edward VI., and may be looked upon as a defence and exposition of Protestantism, as *Everyman* is of Catholicism. The *dramatis personæ* form a very motley group—Good Counsel, Hypocrasie, Abominable Living, God's Merciful Promises, and "Sathan the Dyvill," being among the more conspicuous. The story is a repetition of the old conflict. *Lusty Juventus* is led astray by the seductions of the world and the flesh, but is ultimately rescued from utter ruin by the intervention of Good Counsel and his divine associates. The work bears constant traces of the great revolution which had been partially accomplished. The devil is represented as regretting the overthrow of the Catholic religion, and the consequent

spread of enlightenment throughout the masses of the nation. The "mummeries of superstition" are included in a denunciation quite as comprehensive as Lord John's :—

"Holy pardons, holy beades,
Holy saints, holy images,
With holy, holy blood,
Holy stocks, holy stones,
Holy cloutes, holy bones,
Yea, and holy, holy wood."

The author dwells besides on the necessity of a rigid adherence to the pure and simple Word of God; and as example is more efficacious than precept, makes every quotation from Holy Writ with scrupulous accuracy, and an edifying disregard of the metre,—

"The reward is given us,
As St. Paul declareth in the IIII chapter of the Romans."

"Read the Vth to the Galatians, and there you shall see."

"I will show you what St. Paul doth declare
In his epistle to the Hebrews, and the X chapter."

"My meaning is as Christ saith in the 6th chapter to Matthew;"

and so on. Good Counsel is already affected with the Puritan austerity which seems in some measure characteristic of Protestantism; he objects to the recreation of dancing, "for," says he, "there is no such passing of the time appointed in Scripture." Upon the whole, the Protestant play, if more orthodox, is heavier and more undigested than its Catholic predecessor.[1]

The history of the English drama, so long as its history retains any national importance, is the history of a people struggling towards reality. Nowhere else is the thoroughly practical character of the English mind more clearly manifested. Even in the Miracle-Play we have had occasion to note this necessity. The Moral-Play, at first sight, might appear susceptible of a different interpretation. Was it not, indeed, a step in a different direction when vices and virtues,

[1] Dodsley's *Old Plays. Collections of Old Plays*, 1780. Douce's *Dance of Death*, 1831. In Vol. iv. of the *Shakespeare Society's Papers*, another edition of the latter part of "Everyman" has been published, which differs somewhat from that generally known.

passions and principles, were substituted for kings and apostles? The objection, however, is not good. In the Moral-Play the spectators descended from the beings of another life to the passions which agitated their own. The giants that were before the flood, the prophets and holy men of old, the powers and principalities in heavenly places, were separated from them by a gulf which they could not cross. But the Moral-Play brought upon the stage the practical motives and emotions of the present; and, when this was once accomplished, the Interlude, where these were associated with certain large and stereotyped forms of English life, was the immediate and logical result. Between the Interlude, stilted and rudimentary as it was, and our modern drama, with its abundant and versatile life, and its subtle analysis of motive and character, the interval is not great. The one was the true off-shoot of the other; with this change only, that the latter delineated the *real* in firmer and more delicate lines.

The light in which the early drama was viewed by the "religious public" of the day, is a matter of some interest, or at least curiosity to us. The Catholic clergy, as we have seen, exerted themselves strenuously for many centuries in its behalf, gave absolution to those who attended, permitted the players to perform in the churches and cemeteries, were sometimes themselves the performers. To the stricter ecclesiastics, however, this intimate connection soon became repugnant; and many of them even went as far as the followers of Wickliffe, who, had they possessed the power, would have entirely suppressed it, as injurious to the public morality.

> "Inglond goith to nought, plus fecit homo viciosus.
> To lust man is brought; nimis est homo deliciosus.
> Goddis halidays, non observantur honeste,
> For unthrifty plays, in eis regnant manifeste.[1]

And this antipathy naturally increased when the theatre was removed from their immediate superintendence, and made over to the trading companies and guilds; societies whose popular constitution nourished and developed the spirit of liberty. There had been always a certain wilfulness and restiveness in the sturdy English Catholic; he had never

[1] *Satirical Poem*, temp. Henry VI; Collier's *History of the Stage*, i. 25.

accepted the slavish limitations of the ultramontane school; and the drama furnished a favourite channel through which to attack those defects of ecclesiastical discipline which aroused the antipathy of the populace. But it was not until the near approach of the Reformation that it was considered prudent to check, by direct legislation, the abuse of the stage. In 1533, a royal proclamation, prevented evil-disposed persons from "preaching after their own braine, and from playing Interludes concerning matters now in question and controversie." And a subsequent statute,[1] which was not repealed till the reign of Edward VI., after stating, in the preamble, that the drama had been used to subvert the true religion, goes on to enact, that no person "shall play in interludes, sing or rhyme any matter contrary to the doctrine of the Church of Rome." Orthodox performances, in which Luther and his German Frau were held up to popular ridicule, were still patronised by the clergy, and the reformers bitterly complained that, no matter how licentious the spectacle might be, if the practices of the Church were not discussed, the authorities remained mute and complaisant. Edward Stalbridge, writing from Basel in the year 1543, says to the clergy,—"So long as the players played lies, and sang bawdy songs, blasphemed God, and corrupted men's conscience, ye never blamed them, but were very well content. But since they persuaded the people to worship their Lord God aright, without your lousie legerdemains, ye never were pleased with them." After the victory had been won, the reformed ministers seem to have used their influence to effect the discontinuance of the drama, holding, probably, with Stephen Gosson, that there was a graduated descent,—"from pyping to playing, from playing to pleasure, from pleasure to slouth, from slouth to sleepe, from sleepe to sinne, from sinne to death, from death to the devil." In 1571, and again in 1575, the Whitson Plays were represented at Chester, in spite of an injunction from the Archbishop of York, which, as we have seen, the mayor, Sir John Savage, took the liberty to disregard, probably relying upon the support of his townsmen. But the lay authorities were often quite as hostile as the clergy; and in most of the larger towns the unlicensed

[1] 34 and 35 Henry VIII. cap. i.

players were strictly prohibited. Even the players of the Queen and the Lords of the Council were there barely tolerated; and in 1582, we find the mayor of Leicester giving the Earl of Worcester's company "an angel towards their dinner," to induce them to quit the town without performing. The compromise, however, proved ineffectual, and the performance took place in the town-hall, the actors, at the same time, "acknowledging his worship's authority." The metropolis was invariably foremost in any hostile demonstration, and for many years during Elizabeth's reign, plays were entirely prohibited within the liberties. The city, from its extensive intercourse with Flemish traders, had been tainted, at an early period, with the gloomy doctrines of the German sectaries; in the city, the gruff burgher nourished in secret his wrath against the levities of the court and the vices of the Amalekites; in the city, Puritanism was organising its ranks for that memorable conflict, out of which, in the next century, it was to come conquering and to conquer. So powerful was the influence of the fanatic party, that even Elizabeth, with her artistic prepossessions in behalf of the stage, was frequently forced to give way, and to sanction, under certain limitations, stringent enactments for the repression of public exhibitions.[1]

A very singular article has been published recently, in which the relations that existed between "Plays and Puritans," at a somewhat later date, are analysed and defended,—an article pervaded by the fervid illogic of Mr. Kingsley's mind.[2] The drift of the argument seems to be that the protest of Puritanism was founded on truth, and has since obtained the common consent of Englishmen. We don't swear — we don't go to the theatre—we dress in sad-coloured raiment. Such an argument is surely very contracted, superficial, and disingenuous. No one denies that Puritanism had some good points; it would be an anachronism in history if it had not.

[1] *The Epistle Exhortatory of an English Christian to his dearly beloved Country*, 1543. *The School of Abuse: containing a pleasant invective against Poets, Pipers, Players, Jesters, and such like Caterpillars of a Commonwealth.* By Stephen Gosson, 1579. Archdeacon Rogers (in Ormerod's *Cheshire*) 1581. *Shakespeare Society's Papers*, vol. iv. art. xii.

[2] *North British Review*, No. xlix, March 1856.

But the real question is, whether the view of human life which it adopted was not partial, rigid, fanatical, wanting in breadth and charity, in love and wisdom; whether its theory of man's mind did not tend to exclude from the subjects of legitimate enjoyment many of his noblest pleasures, many of his highest instincts; whether, in short, it would have made society into that which God intended it should be, or into that which Simon Stylites made it on the top of his granite column? The social literature of the Puritans—and no one except Mr. Kingsley would have included the *Paradise Lost* within that category—emphatically proves that all those pursuits which are not directly or specifically religious, but which are the natural development of our æsthetic and artistic nature, were deemed by them vain, frivolous, pernicious, of the devil and not of God. A Greek statue or an Italian picture-gallery was quite as obnoxious as the Gothic aisle, with its painted Madonnas and mystic idolatries. Stephen Gosson denounced the poets and sculptors, —"caterpillars of a commonwealth,"—as well as the players.[1] Is this the theory of human life which is now currently sanctioned? If it is not—and in these days of crystal palaces, national galleries, schools of design, harmonic festivals, who will venture to say that it is?—Mr. Kingsley is hardly entitled to affirm that the principles of Puritanism have been ratified by the consent of modern England. In certain minor and sectional details we may have accidentally

[1] John Northbrooke (1577), Stephen Gosson, Philip Stubbles, Whetstone, William Rankins, and the anonymous author of *The Second and Third Blast of Retreat from Plays and Theatres*, 1580, were the first assailants of the stage, and their works bear out the statement made in the text as to the indiscriminate hostility of the Puritans to every form of art. Mr. Kingsley asserts that Prynne's opinions, as set forth in his celebrated *Histrio-Mastix, or the Player's Scourge*, were fully justified. So that Mr. Kingsley approves, and would adopt, had he the power, the discipline sanctioned by the determined old Roundhead. "They (the players) may be sent to the House of Correction, set in stockes, and whipped; and if they still persist in playing after these corrections, they may be burned with a hot-burning iron, of the bredth of an English shilling, with a great Roman R on the left shoulder, which letter shall there remain as a perpetual mark of a Rogue; and if this will not reforme them they may be banished, and after, if they return again and persist incorrigible, *be executed as felons!*"

adopted the fashions of Puritanism. We may cut our hair and our doublets as the Roundheads did. But is this done under the influence of the same abstract spiritualism, or solely because we find these habits better suit our convenience and our indolence? *They* believed that miserable, unregenerated, and rebellious sinners insulted their Maker when they appeared in the rich clothing which the Cavaliers habitually wore,—is this the reason that a modern gentleman goes to a marriage or a dinner-party in a suit of black cloth, as though he proposed to enact the part of a mute at a funeral? Most artists, I believe, are of opinion that in the article of dress the Norman cavaliers exhibited better taste than we do. If our modern sobriety, therefore, is due to the Commonwealth, the Commonwealth must have corrupted us,—corrupted, for in such questions as these it is not religion, but art, correct judgment, sound taste, that is the only competent court of appeal. But even in regard to the *details* of social life, is it true that modern society has accepted the limitations of Puritanism? Is dancing prohibited in polite circles? On the contrary, have not new fashions been introduced which might shame the shameless beauties of the Restoration? We have given up swearing certainly; but have we adopted the Scriptural nomenclature of the Commonwealth? We do not frequent the theatre; but because we prefer an Italian ballet to a Shakespèrian drama, is it to be said that we are afflicted with the religious scruples of Mr. William Prynne? There is not that grossness in our literature which disgraced the literature of the Stuarts; but Mr. Kingsley has himself composed plays and poems which would shock the soul of an honest Roundhead quite as much as anything that Suckling or Sedley ever wrote. Thus, in our wider and truer estimate of man's spiritual nature, we have discarded the characteristic limitations of Puritanism; and while certain particulars in our society which bear a certain resemblance to Puritanism are to be attributed not to it, but to altogether different agencies, in others we have diverged further from the Roundhead than from the Cavalier, inasmuch as *his* theory of human life was of the two the more partial and sectarian.

The facts to which I have alluded show that, previous to the Reformation, the dramatist had undertaken to expose the

vices of the ecclesiastic. At the same time there are comparatively few traces of this in that portion of the dramatic literature which has been preserved, and none of any large or conscientious antagonism to the *principle* of Catholicism. Had there been any wide-spread repugnance to the *doctrine* of the Church of Rome, the evidence would certainly have been more abundant. But what valid facts remain, go to prove that, at the era of the Reformation, the people, though disgusted with the special nuisances and iniquities of the monastic system, remained loyal Catholics at heart. Heywood, for instance, often directed his vigorous ridicule against the mendicant monks and pardoners of his day. Into the "newe and very merry Enterlude of the Four P's,"[1] one of the latter is introduced who displays a most filthy and preposterous store of relics, among which are the French-hood and bon-grace of the Virgin, the great toe of the Trinity, the jaw-bone of All-Saints, and the bees that stung Eve when she eat the apple;—

Pardoner. Here is a boxful of humble bees,
That stange Eve as she sat on her knees,
Tasting the fruit to her forbidden.
Who kisseth the bees within this hidden,
Shall have as much pardon of right,
As for any relic he kiss this night.

To which the Apothecary modestly replies,—

I am not worthy; nay, let be,
Those bees that stange Eve, shall not sting me.

Again, in the same play, we have this sarcastic appreciation of a famous clerical luxury—

With small cost, and without any paine,
These *pardons* bring them to Heaven plaine;
Give me but a penny or two pence,
And as soon as the soul departeth hence,
In half an hour, or *three-quarters at most*,
The soul is in Heaven with the Holy Ghost.

But Heywood was himself a conscientious Roman Catholic, and suffered for his attachment to the faith. It was against those external accessories alone, which were not, in his opinion, a necessary element of his creed, and which were calcu-

[1] Dodsley's *Old Plays*, vol. i.

lated to impair the authority of an old and august communion, that his satire was directed. The evidence is of a similar tenor throughout. The Reformation was not the result of any general conviction among the English people of the unfitness of Catholicism to satisfy the demands of their religious life. Compliance with the scrupulous morality of an unscrupulous monarch; resentment at the secular pretensions of the Roman Pontiff; vehement hatred against a clergy who shackled their intellectual life, and defiled their household purity; these, if we are to credit the testimony of our national drama, the verdict of our social literature, were the causes which led to the downfall of the Catholic system in England.[1]

It is often asserted, on behalf of Catholicism, that it has proved itself better fitted than Protestantism to nourish the more graceful arts of life. Such a statement is curiously fallacious. For the patronage which it has bestowed has always

[1] The reports of the commissioners appointed by Cromwell to inquire into the state of the monasteries, prove that Heywood's satire was not overcharged. The "Pardoner's" collection of relics is not more preposterous than those which Langton and Loudon scattered. "By my servant," says Langton, writing to Cromwell, "I send you reliques; first, two flowers wrapt in black and white sarcenet, that on Christynmus evyn, *hora ipsa qua Christus natus fuerat*, will spring or burgen, and bear blossoms, *quod expertum esse*, saith the Prior of Maden Bradeley. Ye shall also receive a bag of reliques, wherein ye shall see strange things, as shall appear by the scripture, Our Ladies smock, Parte of God's supper *in cena domini*, *Pars petre super qua natus erat Jesus in Bethelem*, belyke there is in Bethlehem plentie of stones, and they make their mangers of stone. The scripture of everything shall declare to you all: and all this of Maden Bradeley, where is an holy father prior who hath but vj children, and but one daughter married yet of the goodes of the monastery,—hoping shortly to marry the rest. I send you also our Ladies gyrdell of Bruton, rede silk, which is a solemne relique sent to women travelyng, which shall not miscarry *in partu*" (page 58). "I have sent up," writes Dr. Loudon from the abbey of Reading, "the principal relique of idolytrie within this realm, an angel with one wing that brought to Caversham the spear-hede that percyd our Saviour his syde upon the Crosse. I have required of my Lord Abbot the reliques of his house, and I have taken an inventory of them." In the accompanying inventory we find—"two peces of the Holye Crosse," Saynt James his hand," "a bone of Mary Magdelene," "a chow-bone of Saint Ethelmolde" (page 227). The mendicant pilgrims were considered a nuisance by the clergy as well as the laity. Bishop Barlow in petitioning for the translation of his See, complains that in the desolate and unfrequented place where it is situated, "vacabounde pilgrimes" are his only visitors (page 207).—*The Suppression of the Monasteries*, Camden Society, 1843.

been arrogant, ostentatious, insulting, and, from its very nature, calculated to cramp the freedom of the judgment, to petrify the versatile life of the imagination. Catholicism *preserves* admirably, it is the most conservative of institutions, and it was consequently pre-eminently fitted for the work which it undertook before the revival of letters. But to develope the taste or the intellect is not its appropriate function, and when it has affected to do so, the attempt has proved either ineffective or insincere. Its best literature is the literature of those of its members, who, like Pascal and Bossuet, asserted their intellectual and political freedom in opposition to the exacting claims of the Church. Even in its relation to the great masters of the Italian school, the case on which its advocates chiefly rely, even there the instincts of the artist were sacrificed to the interest of the priest. The loving insight which might have charmed us with exquisite studies of the familiar life of Italy—a life more pictorial than the poetic life of other people—was spent upon decrepit martyrs and emaciated saints, was forced to move within the narrow limits marked out by the meagre asceticism of the monk, and created an art which, great in the genius and capacity of its masters, was great *in spite* of the coarse tyranny which it served slavishly. To the Reformation, letters, learning, language in England, are incalculably indebted. While it saved our liberties, it emancipated our art, and created our literature. The impressive unity of Catholicism had required throughout Christendom the preservation of one common language; the Reformation introduced into the national literature the habitual use of the national speech, a speech not now surpassed by any in Europe for its varied harmonies, its rich and versatile combinations. Men *think* more freely, more eloquently, more earnestly, in their own than through the fetters of a foreign tongue; so much so, that had the Latin not been abolished by the Reformation, it is quite certain that *Lear*, *Hamlet*, *Othello*, would have been postponed—*sine die*.

The emancipation of English literature, was however, somewhat sudden. The weight was abruptly removed, and the recoil was violent and excessive. But the most severe and hostile historian cannot criticise very harshly the extravagances which followed. These extravagances, as we know,

broke out in every direction; in thought, in speech, in the habits of dress, in the usages of society, in Euphuisms by Lily, in Arcadias by Sidney; "whereby," as old Harrison drily concludes of his contemporaries, "they imagine the workmanship of God to be not a little amended." "Except," he goes on, "it were a dog in a doublet, you shall not see anie so disguised as are our countrymen of England; women are become men, and men transformed into monsters." His invective need not have been limited to dress, for the spirit was the same throughout, and Euphuism,—into an examination of which I regret that I cannot now enter,—was its literary representative. These extravagances,—the inevitable issue of an exuberant and suddenly enlarged intellectual activity,—might have done lasting harm to our society; but they were luckily nipped in the bud, and the popular sympathies diverted from the artificial to the real by one who, utterly disregarding the mechanic unity of *form*, contrived to reach by a peculiarly subtle and penetrating insight, the organic unity of *life*. An age of daring license and reckless originality was prevented from permanently injuring the national taste, by the perfect tact and temperance of SHAKESPEARE.

J. S.

HOMŒOPATHY.

OBSERVATION, meditation, and experience," writes Hahnemann in the introduction to his chief work, the *Organon of the Healing Art*, "have discovered to me that, according to the precepts of homœopathy, the course to be followed in order to obtain gentle, swift, sure, and durable cures consists in choosing, in each case of disease, a remedy capable in itself of producing an affection similar to that which it is desired to cure. This homœopathic method had not been taught by any one before me; no one had put it in practice. But if it alone be consistent with truth, (as every one may be convinced as well as I), we may expect that, notwithstanding its long concealment, every age will, nevertheless, offer palpable traces of it. This has, in fact, been the case. In all times, all diseases which have been cured really, promptly, durably, evidently, by medicines, and which have not owed their cure to the accidental concurrence of some favourable circumstance, such as the natural termination of an acute disease, or the gradually reinforced bodily powers obtaining a mastery over the disease during an allopathic or antipathic treatment (for a direct and an indirect cure are very different),—all such diseases, I say, have yielded, although the physician did not know it, to a homœopathic remedy, that is to say, to a remedy having the power of exciting of itself a disease resembling that of which it caused the removal."

In another passage, Hahnemann thus briefly expounds the results which he ascribes to the homœopathic method. "When the application of a medicine, chosen so as to be perfectly homœopathic, has been well made, the natural acute disease

which it is intended to cure, however malignant and painful it may be, is dissipated in a few hours if it be recent, and in a few days if it be of somewhat longer standing. . . . Chronic diseases, and especially those which are complicated, demand more time. Those chronic medicinal diseases especially, which allopathic medicine engenders in addition to the natural disease which it has been unable to cure, demand a very long treatment, and are frequently incurable."[1]

In the above extracts we strike, as it were, the key-note of the passage in the history of medicine which it is proposed to examine in this article. We are enabled, in particular, to appreciate two of the characters by which it is distinguished. Homœopathy is a *universal* and an *exclusive* system. It professes to meet the case of every curable disease; and to be the only method by which diseases are really curable. It assumes, in other words, to have reduced the entire cure of disease by medicines to a single therapeutical law; and it puts forward that law as a new discovery. In submitting ourselves, therefore, to the guidance of homœopathy, we cannot avoid rejecting all other medical doctrines, in so far as they relate to the action of remedies. We are led to the conclusion that medical truth is a thing of yesterday; that up to the promulgation of the "homœopathic law," the cure of diseases was the result of accident, or of a blindly-working and fluctuating experience; but that it is now based on principles as secure as they are simple, and requiring for their application only an exact knowledge of the properties of drugs on the one hand, and the symptoms of diseases on the other.

Hahnemann did not shrink from maintaining the total and irreconcilable antagonism of his own system of doctrine to all those current in his own day. In his classification and nomenclature of therapeutical methods, Homœopathy, Antipathy, and Allopathy appear to exhaust the possible applications of remedies to the cure of disease. The first of these terms, which he derives from the Greek words ὅμοιος, *like*, and πάθος, *a morbid state*, he applies to his own system, the formula of which is contained in the words "similia similibus curentur," *let like things be treated by like*. To the second-term, from ἀντι, *opposed to*,

[1] *Organon*, § 149.

and πάθος, he assigns an exactly opposite formula, viz., "contraria contrariis curentur;" and of this mode of practice he professes to find numerous examples in the medicine of the past. All medical practice and all therapeutical doctrine not coming under either of these formulæ is, according to Hahnemann, only to be regarded as a blind attempt to discover the proximate or hidden causes of disease; remedies being then applied according to their presumed influence upon these causes, and not from any relation of their effects to the obvious symptoms. On this ground, Hahnemann termed the great mass of medical practice Allopathy, from ἄλλοιος, *different*, and πάθος, and he finds constant employment for his sarcastic pen in contrasting its complexity and confusion with the simplicity of the homœopathic system, which, according to him, stands alone and apart, refusing to ally itself with other methods, or even to accept from them that temporary aid which, in some instances, they appear to be capable of bestowing. Hahnemann repeatedly asserts, that allopathy and antipathy, while occasionally purchasing a very slight and temporary relief from suffering by subsequent aggravation of the disease, are responsible for a large proportion of the sickness and mortality from chronic diseases; of which a great number, and these the least remediable, spring solely from the use of active drugs by physicians and apothecaries. The homœopathic law, on the other hand, is, according to Hahnemann, of universal application in theory, and is limited in practice only by the limited number of remedies, and by our imperfect knowledge of their action upon the human body. It claims as its own every real cure; it excludes, within the limits of its application, every possibility of failure. It condemns with equal severity the dissentients from its own exclusiveness, whether they range themselves among its avowed opponents, or attempt to bring about a compromise of opposing theories. "It is as impossible," says Hahnemann, "to conceive of another true method of curing dynamic diseases, as it is to draw more than one straight line between two points."[1] As to the practitioners who pursue a mongrel system, and, by calling in the resources of allopathy or anti-

[1] *Organon*, § 109, note.

pathy, acknowledge the insufficiency of the homœopathic law, there is no excuse for them. They are no true homœopathists, and are, if possible, worse than the partizans of the "hateful methods" to which it is so diametrically opposed. "The pure homœopathist, who almost never misses his mark, who succeeds almost always, will never consent to an association of this nature."[1] The homœopathic law, therefore, is, according to Hahnemann, the single "Organon" of medicine. It is the exclusive and universal method of cure. It is a system "of great simplicity, always the same in its principles and in its practice, forming a separate whole, perfectly independent of other systems, and refusing to associate itself with the pernicious routine of the old school."[2]

I have been thus particular in insisting on the universality and exclusiveness of the so-called homœopathic law, because it is evident that a system so characterized cannot be tried by the ordinary canons of criticism. Not only is the great experience of the world against it *primâ facie*, but the assemblage of instances in its favour will prove nothing, unless the opposing instances are satisfactorily explained away. When it is asserted that bleeding is useful in certain inflammations, or opium in certain diseases of the nervous system, it is not necessary to demonstrate that over the whole range of these diseases, still less in each individual case, the fact asserted holds good. It is enough if we succeed in showing that, in some cases of inflammation or of nervous disease, bleeding and opium respectively are used with good effect. Very different is the position of the homœopathist. He has bound himself over to establish, by sufficient proof, not a more or less particular fact, but a general law of nature, including and superseding all others within the sphere of its operation. He has himself chosen this issue, and must abide by it. Had Hahnemann asserted only that *certain* remedies resemble, in their operation upon the healthy body, the diseases they are employed to cure, he would have but asserted a truism; for every one knows, and no one disputes, the action of ipecacuanha in some kinds of sickness, and of rhubarb in some kinds of diarrhœa. It is the assumption that we can

[1] *Organon*, § 109, note.

[2] Preface to the *Organon*.

generalize this fact into a universal principle or law that constitutes the peculiarity of the homœopathic system, and at the same time gives rise to the difficulty of dealing with it by means of instances.

The contumely which Hahnemann's pugnacious nature and lax style of declamation led him to pour out so freely upon the systems which he ascribed to his opponents, increases not a little the difficulty of submitting his works to a calm and serious examination. There are few medical writings in any age so careless of logical method, and so fruitful of bitter invective as his; and, even in the ecclesiastical arena, it is rare to find a disputant so ready to foreclose argument by strong assertions; so little anxious to convince, so forward to strike and to wound. The thunderbolt of an assumed infallibility is never out of his hands. In perusing his writings, we seem to see the opponents of the new theory pursued by an avenging Nemesis, from which there is to be no appeal. The experience of ages is no defence, but an aggravation of their crime; the multitude of witnesses on behalf of the "ancient medicine" does not entitle it to a more respectful consideration, but rather calls more loudly for that summary vengeance which their great conspiracy against the truth is sure to call down on the head of "allopathic" physicians. It is difficult, it must be confessed, to preserve one's equanimity in the midst of such a highly-charged electrical atmosphere as that of the Hahnemannian polemics; but we shall do our best.

> "Could great men thunder
> As Jove himself does, Jove would ne'er be quiet,
> For every pelting, petty officer,
> Would use his heaven for thunder; nothing but thunder!"

The following passage may serve as an example of the "*sæva indignatio*" alluded to. It occurs in the preface to Hahnemann's chief work, the "Organon der Heilkunst."

"The end of the fatal efforts of the ancient medicine would appear to be not less than this,—to render incurable, perhaps even mortal, ninety-nine hundredths of the diseases which assume the chronic form; and this end is attained without difficulty when the practitioner is fully acquainted with the accredited methods of treatment, and has become deaf to the

voice of conscience. He then either weakens or torments unceasingly the feeble invalid, already overwhelmed by his own misfortunes, or he brings upon him new and terrible diseases. Arguments are not wanting to the allopathist to defend all the mischief he does; but he never seeks support save in the prejudices of his masters and in the authority of his books. . . It is not until (being convinced by long practice of the dreadful effects of his pretended art) he limits himself to insignificant drinks (that is to say, to doing nothing, even in the gravest cases) that his patients begin to be less frequently rendered worse, and cut off in his hands. This fatal art has, for a long series of ages, wielded arbitrary power over the life and death of the sick; has destroyed ten times as many men as the most murderous wars, and enormously increased the sufferings of many millions of others."

One is frequently reminded, in reading these and other similar passages, of the sledge-hammer style of eloquence which procured for Paracelsus among his followers the title of "Lutherus Medicorum." Hahnemann was a ready penman, and an able, though unscrupulous, controversialist; and there can be no doubt that, by his virulent opposition, extravagant as it was, the overweening pretensions and unstable theories of medicine, which have been ever too much in favour, and were current to an unusual degree at the time he wrote, received a check which was needed, and which has, on the whole, been useful to the medical art. Nor is there wanting in some of these tirades, even amid the predominating bitterness of spirit, a certain grim humour which entitles Hahnemann to a place among the satirists. In a literary point of view, however, they do not rank very high among the numerous assaults on medical pedantry and absurdity. The accurate and profound erudition of Rabelais, the delightful frankness and amiably egotistic philosophy of Montaigne, the thoroughly laughable and effectively broad caricature of Molière, are wanting to point the ridicule of Hahnemann, and to temper his vehemence. Instead of these, we have ponderous displays of ill-digested reading, guided by no critical faculty, and tending to reduce all testimony to a dead level; systematically distorted reflections of medical science; with an amount of arrogant dogmatism, and self-

confident assertion, to which it is very difficult to accord the credit of sincerity. We are never allowed to forget that we are in the presence of one who claims to be the possessor of exclusive truth, and with whom the sacrifice of a hecatomb of reputations is but the logical consequence of an inexorable system—the necessary means to the exaltation of the "new medicine, which *alone is true.*" We admire the strength of will—we smile at the boastful pretensions—we indulge a momentary feeling of indignation at the sweeping and virulent invective; but we find little in these boisterous outbreaks of medical fanaticism to satisfy either the reason or the moral sense. The special pleading of an advocate is manifest throughout; and of an advocate compelled, by want of materials for a calm and reasonable appeal, to resort to indiscriminate abuse. The line of argument (so far as such a thing can be traced in these torrents of invective) is as follows:—The causes of all diseases, except surgical or mechanical diseases, are hidden; and hence allopathy (that imaginary system which Hahnemann everywhere sets up as a target for his sharpshooting) is nothing but a system of complicated absurdity, in which remedies, themselves productive of disease, are given in a cumulative manner; so that the original symptoms are lost in the crowd of artificial maladies, and the last state of the patient is worse than the first. Thus, opium may be selected to procure sleep, and may succeed in accomplishing this single object; but as opium is known to act upon the skin, the kidneys, the intestinal canal, as well as upon the nervous system, other drugs are associated with it for the purpose of preventing these collateral effects; these drugs are productive of a host of disorders, which, in their turn, require renewed interference, and in this manner are engendered all those complicated, functional, and organic affections which usually mark the course of the most severe and fatal diseases. Allopathy, by its blind routine, by its large doses of active drugs, and by its complex prescriptions, is therefore not only ineffectual as a curative system, but becomes the fruitful parent of disease. In all these respects it is opposed to homœopathy, which, besides a curative power unknown to any other system, can lay claim to the virtues of

perfect simplicity and perfect safety. We shall have occasion to consider some of these assertions in the sequel.

Having thus endeavoured to define the position which homœopathy claims for itself in relation to medical systems and medical practice in general, I shall proceed to consider the evidence by which its claims are supported. We may divide this subject conveniently into two portions: *first*, the homœopathic law in the abstract, or as inferred from selected instances; *secondly*, the homœopathic practice, as bearing on the truth of the alleged universal law on which it is founded. It is evident that these two inquiries are not only capable of being distinctly pursued, but that they will produce confusion if mingled together; for it is possible, on the one hand, that the law may be well founded, although its general application in practice be unattainable; or, on the other, that the law may have been inferred on insufficient evidence, although the practice be on the whole good, *i. e.*, an improvement on that ordinarily pursued.

I. *Examination of the homœopathic law.*—Let us now see how Hahnemann builds up the doctrine which is in fact the foundation of his system. We are justified in looking to Hahnemann's writings as the most authoritative exposition of this doctrine, because neither he nor any of his followers professes to find a distinct expression of it in previous medical history; but, on the contrary, as we have seen, put it forward as a direct contradiction to all antecedent generalizations. Nor am I aware of any attempt on the part of the homœopathists to revise the process of reasoning by which this doctrine is alleged to be established on the ruins of the past. On the contrary, the latest, and unquestionably the ablest and most distinguished of the homœopathic controversialists, has, in great detail, and without one word of unfavourable commentary, narrated the whole process of this investigation according to the account given by Hahnemann himself. "The idea of the homœopathic law was reasoned out," says Dr. Henderson, "*before a single testing experiment was made.* The first experiment was made with cinchona bark."[1] The

[1] *Homœopathy fairly represented;* by William Henderson, M.D.

narrative to which this remark applies is to be found in the letter of Hahnemann to Hufeland, quoted by Dr. Henderson. But this was one of the earliest publications in which his ideas were expressed otherwise than in a fragmentary form. My observations will, therefore, for the most part, be founded on the *Organon*, the author's most important and most matured work.

I propose first to examine the logical process by which the law of homœopathy was "reasoned out before a single testing experiment was made." This abstract conception of the law occupies the first place in the history of its discovery. The value attached to it by Hahnemann, however, was not merely historical, as we find it occupying the first place even in the *Organon*. Hahnemann's first thesis, therefore, with respect to the homœopathic law, professes to be a logical deduction, from the nature of disease, and the nature of remedies in general. Let us see how he establishes his position.

All disease, according to Hahnemann, is a modification of the vital force (which in health determines the functional activity of the organism), by external influences of a deleterious or morbific kind. But as the deranged vital force is at the root of all disease, and as the vital force is an immaterial force ("a spiritual dynamis," according to Dr. Dudgeon's translation), it follows that morbific influences can only act in an immaterial (or "spiritual") manner on the vital force, and likewise that "curative agents are able to re-establish, and do actually re-establish health and harmony, only by their immaterial (spiritual or dynamic) action on the vital force." Now, as everything immaterial is, of necessity, beyond the reach of the senses, it follows that the original disturbance of the vital force, as well as the essence of its cause and of its cure, must always be hidden from our direct observation. But the Author of nature has so arranged that the hidden modifications of the vital force in disease find their perfect exposition in the form of symptoms, *i. e.*, morbid phenomena accessible to the senses. To our senses, therefore, *the symptoms are the entire disease*, and each separate alteration of the vital force is manifested in a special series of symptoms corresponding in character with the nature of the morbific influence. It is

of no avail, according to Hahnemann, to inquire how the altered vital force produces diseases. Still less philosophic is it to ascribe to disease a separate material existence within the organism, as is often done by medical theorists (allopathists.) "The Master of life has rendered accessible to the senses only those phenomena of disease, the knowledge of which is necessary and sufficient for the cure; and the cure, accordingly, consists solely in the removal or annihilation of the symptoms, which, when taken as a whole, represent accurately the whole of the disease. All speculation beyond this is futile and absurd."—*Organon*, §§ 6-18.

Observe, before going further, that to this general exposition of doctrine, Hahnemann incidentally admits two classes of exceptions, which may, however, perhaps be considered as the same. The one is that of surgical or mechanical diseases (§ 13), in which the essence of the disease may be accessible to the senses, and therefore amenable to mechanical processes of cure; the other, where a *causa occasionalis*, or manifest exciting cause of disease (§ 7) exists, and is capable of being removed. Of these exceptions, there is more to be said hereafter.

To pursue Hahnemann's reasoning. As the only knowledge we have of disease is through symptoms, and the only knowledge we have of the effect of remedies is through their effect on these symptoms (the curative or dynamic essence being, like the vital force on which it acts, immaterial and hidden), it follows that remedies can only act on diseases in virtue of their power to alter the vital force, *i. e.*, "to produce (in healthy persons) certain accidents or symptoms, or, to express it more clearly, a certain artificial disease which destroys the natural disease already existing." It follows also that, to annihilate the totality of the symptoms of a malady, we must seek a medicine which has the power of producing either *similar* symptoms, or *contrary* symptoms, to those of the disease, according as experience teaches us to use the one or the other. Experience, however, has already pronounced a verdict upon this issue, by showing, as the result of all careful trials, that morbid symptoms can only be temporarily palliated, while they are in reality aggravated, by remedies administered on the antipathic system. The allopathic

system, again, is a mere imitation of the blind efforts of the vital force to get rid of a noxious influence by creating, at all costs, a disturbance in the organism; it can never do good except by chance. The homœopathic method, then, of adapting remedies to symptoms is the only one which remains. Therefore, *per viam exclusionis*, it is the only true system. —*Organon*, §§ 19-24.

Should the reader be astonished at this strange specimen of medical logic, I beg to assure him, nevertheless, that, to the best of my understanding, I have faithfully reported it. In doing so, it has been necessary to reduce a great deal of repetition and *verbiage* within a moderate compass; but I am not aware of having suppressed or understated a single point in the original argument. In the letter to Hufeland, most of the same reasoning reappears in a less abstract form. The ultimate appeal, as in the above passages, is to the alleged failure of the ordinary practice (allopathic and antipathic). This failure being assumed, it is "blasphemous" to conceive that the medical art is incapable of greater certainty; "that the infinite wisdom of the eternal Spirit that animates the universe could not produce remedies to allay the sufferings of the diseases He allows to arise;" or that God "was capable of the tyranny" of leaving the cure of any disease an insoluble problem. "There must be a sure and trustworthy method of treatment as certainly as God is the wisest and best of beings;" for it would be "indifference to the tortures of His best beloved creatures" to have denied to the genius of man the discovery of positive and certain remedies, with their "easy, sure, and trustworthy" application to the cure of disease. The arcanum thus yielded, after centuries of darkness, by the divine beneficence, is, of course, Homœopathy. I confess to a degree of reluctance in quoting even so little as is here given of these fanatical, and, as it seems to me, almost impious reflections upon the divine government of the world. They afford a striking illustration of the license allowed to itself by an ill-regulated intellect, acting in a self-willed and arrogant nature. We have already seen how Hahnemann dealt with human science and learning; in these passages we see the same scornful and vehement spirit attempting, as it were, to scale the heavens—to lay down

laws for the Creator of the universe, and to pluck from His grasp, under the threat, as it were, of an accusation of injustice, thinly disguised in reverential language, the elixir of life for which the alchemists laboured in vain. We are shocked by the thought that the "tyranny" and "indifference" against the imputation of which Hahnemann seems, in the above sentences, to defend the Deity, have actually been displayed towards mankind for several thousand years, during which they have, according to Hahnemann, lived in a state of medical darkness. It is painful to find these fanatical aberrations quoted approvingly by Dr. Henderson as evidence of a "lofty piety," and as "the solitary instance" of arduous medical researches undertaken on the special ground of a deep sense of the divine goodness. The whole passage reminds one forcibly of the words put by Goethe into the mouth of Prometheus, and intended to give expression to the passionate outpourings of a strong and rebellious will.

"When I was yet a child,
And knew no better,
Wildered, I sought above
An ear to hear my plaint—
A heart, like mine,
To pity the oppressed."
"Who helped me then
Against the Titan's insolence?
Who rescued me from death—
From slavery?
Hast thou not, thou thyself, done all,
Thou glowing heart of mine;
Glowing with reverence,
Glowing with youth and love,
With foolish thanks for safety,
To him that *sleeps* above."

With regard to the argument, or rather the hypothetical basis on which the homœopathic law is made to rest in this portion of the *Organon*, I have only a few remarks to make.

First, This argument assumes as proved a theory of disease which never can be proved, and which can, at most, be only partially true, inasmuch as it is clearly untrue of some diseases, and probably not entirely true of any. That

in all diseases, whether of function or structure, there is some modification of the forces of life, or of the conditions under which these forces act, is true; but this is simply a definition of disease, not an inquiry into its nature with a view to its cure. Disease is disordered function; disordered function implies a modification in the action of those forces which preside over function in the living being—a modification, in other words, of the vital activity, or vital force. But in the raising this vital force to the rank of a metaphysical entity; in endowing it with powers of acting and suffering distinct (in theory) from those of the bodily organization in which and through which it acts and suffers; in assigning to it, in short, a spiritual or immaterial essence, from which disease *directly* springs, and on which remedies *directly* act, Hahnemann has transcended the sphere of science, leaving behind him the whole of the facts which it was his duty to investigate, and if possible to make the basis of his theory of disease. He has, in fact, committed the same error as Van Helmont and his predecessor Paracelsus, when they ascribed the whole phenomena of health and disease to an Archæus; who, from his unseen throne in the centre of the Microcosm, gave and administered laws, suffered and struggled, was oppressed or victorious, angry or pleased, restless or at peace. The results of this fundamental error are plainly visible in every step of the subsequent reasoning. To connect symptoms with the immaterial essence of disease, Hahnemann has to call in the aid of a special arrangement of divine providence, by which, as the keys of an instrument are made to correspond with the chords (*i. e.*, artificially and for a specific purpose), the symptoms are placed in relation with the states of the vital force, only that we may be informed of so much as is necessary to the cure of disease, which is in itself an inscrutable and intangible essence. In like manner, in order to connect the curative virtues of material remedies with the aberrations of an immaterial vital force, Hahnemann is compelled to avail himself of another assumption, not less violent than the former,—that remedial substances, known as they are to act upon the healthy organism, are endowed with the physiological properties simply as an index to their therapeutic virtues, which are not capable of being the subject of direct physical

demonstration, but are occult, dynamic, immaterial, specifically adapted to the specific changes in the immaterial vital force. In criticising the ordinary imperfect theories of disease as not justified by our knowledge of its phenomena, Hahnemann may not be very far wrong; but he only escapes the error which he ascribes to allopathy by plunging into a sea of abstract speculations, founded on assumptions without proof, having no actual or possible place in demonstrative science; which it is, therefore, impossible to confirm, and equally impossible, as well as useless, to confute.

Secondly, The argument of Hahnemann breaks down at every point when applied to certain well-understood forms of disease, some of which he has himself indicated. Thus, mechanical diseases requiring surgical appliances are excepted from its operation. But why? Is not a stone in the bladder a most palpable disease, and is it not removed by a most palpable remedy? Do we not touch here, by means of knife and forceps, that very proximate or essential cause of disease, *quæ præsens morbum facit, sublata tollit?* And do we not, having this proximate cause or essence in our view and in our power, practically determine to leave the mysterious vital force, with all its occult operations, to shift for itself, while we lay hold of the mechanical and tangible obstruction, and by removing it, cure the patient? Now, suppose the obstruction to be of a different kind—a tapeworm in the intestine, an acarus in the skin, a gallstone in the biliary duct, an undue fermentation of the food, an indigestible mass in the stomach, a poison in the blood. Of most of these sources of disease, considered as essential causes of certain symptoms, we have incontrovertible proof; some of the causes we can remove by medicine, thereby removing the disease, some of them we cannot so remove. But with most physicians the same *principles* apply to all, *i. e.*, removal of the cause, if that be possible—palliation of the symptoms, if not. Hahnemann, on the contrary, divides these precisely similar cases into two, or perhaps into three classes. Where the cause (*causa occasionalis*) can be directly removed, he will not absolutely shut his eyes to the necessity of this proceeding; but where it cannot, or where the nature of the cause is only a shade less palpable than a stone in the bladder, *i. e.*, where the

disease is internal, and without an evident *causa occasionalis*, he will refuse to seek it further, and will take refuge in the mist of an immaterial essence, only to be reached by specific remedies. Palliative remedies and empirical attempts at cure he equally repudiates. Disease *must*, above all, be *certainly* and *easily* curable; if possible, by an intelligible theory, if not, then by a theory founded on gratuitous assumption, and clothed in the panoply of a scholastic logic worthy of Thomas Aquinas. Yet who shall say that we are wrong, if we assert in opposition to Hahnemann, that the great mass of the ills that flesh is heir to occupy precisely this middle position, which Hahnemann will not admit? Their cause is, to a certain extent, removed from observation, and perhaps still further removed from the action of remedies; or it is complex, and is only in part within our reach; but it is still a material cause, as cognizable in theory, possibly as amenable to practice, (if we only knew what it was) as the stone, or the acarus, or the tapeworm.

Thirdly, Admitting that Hahnemann's theory of disease and of cure in general were as sound as I have shown it to be unsound, the special application of it is a *petitio principii*, or unproved assumption, of the most gross and indefensible kind. It amounts to this, that as the Author of nature has established for our guidance a relation between the symptoms of natural diseases and the artificial symptoms excited by remedies, it is our duty to discover this relation; but as the two classes of symptoms (according to Hahnemann) must be either *similar*, *dissimilar*, or *contrary*, our choice of remedies must also be either homœopathic, allopathic, or antipathic. Both of the latter, however, have been tried and found wanting; therefore the former is necessarily, exclusively, and universally true.

Such is the argument. To every step in it I object. Not to press for the present the consideration that this argument is, at best, a leap in the dark from allopathy and antipathy, presumed on insufficient grounds to be false, into homœopathy, presumed on equally insufficient grounds to be true, I protest against the endeavour to exhaust the possible relation of symptoms to each other in the above three formulas. The experienced and scientific physician well

knows that relations of the most unquestionable and definite kind have been discovered between symptoms,[1] which are not to be expressed in the idea of mere likeness or unlikeness; just as the mathematician knows that there exist among numbers relations of the most complex and exact kind, which are not to be expressed in the old and crude Pythagorean formulæ of equal and unequal, male and female, generated and not generated. These relations are, in both cases, the object of legitimate science. But the science of *pathological* relations is repudiated by the homœopathist, who shuts himself up in the prison of his own crude conceptions, and puzzles himself in the vague search after mere analogy, the most lax and fluctuating of all foundations for scientific knowledge.[2] The law of homœopathy could only be proved in theory, according to the scheme of Hahnemann, by disproving every other possible relation between the symptoms of the remedy and the symptoms of the disease. But so far from doing this,

[1] For example:—Blindness is a symptom or a form of disease. Of course, one case of blindness may be said to be similar to another case of blindness; and in the ordinary homœopathic sense, it can scarcely be said to be similar to anything else. It is not very similar to a case of deafness, or loss of smell, or of taste, or of touch, or of motion. Yet, with all of these, it may present pathological relations of the most close and intimate kind. *Given*, several cases of blindness. The patients are all deprived, or partially deprived, of the light of day; the forms and colours of objects, the gay mantle of nature, the varied works of art, are shut out from the conceptions of all; they are "similar" cases. But one patient may be blind from cataract, one from palsy of the retina, one from inflammation of the cornea, one from adhesion of the pupil, one from tumour of the brain, one from total destruction of the eyeball. How much more really unlike each other are these "similar" cases than many others which, to the common view, present no such similarity at all? Again:—How much more resemblance between a case of blindness and lameness, both dependent on diseased brain, than between the former, and a case of blindness from cataract?

[2] In the very great difficulty of dealing with analogy as a principle for the establishment of truth, may be found the explanation of the fact, that homœopathists rarely meet with any insuperable obstacle either to drawing their own conclusions from apparently adverse instances, or to explaining away the cases where homœopathy has been alleged notoriously to fail. Who can tell when a remedy has been homœopathically chosen? I have shown, in the preceding note, that the most dissimilar things may appear similar, and *vice versa*, from a slight change in the point of view. The more complex the symptoms, of course the more involved and difficult the argument.

he has not disproved, any more than he has hitherto proved, anything at all. He has assumed much, he has guessed at more, and he ends with making the assertion that homœopathy must be true because allopathy and antipathy are false. And this is what we are told to consider a logical exposition of the homœopathic law, independently of experiment!

I have next to consider the homœopathic law in the light of positive experiment. But here my limits forbid me to enter at all into the discussions which have arisen upon almost every one of those instances which have been adduced by Hahnemann himself, and by others, as the *instantiæ crucis*. I have already alluded to the ease with which vague analogies may be converted to the support of a pre-conceived opinion. The controversies in question afford constant proof of this tendency, which Dr. Simpson has happily compared to the easy and courtier-like acquiescence of Polonius in the doctrine "*similia similibus*," when proposed to him by Hamlet:—"Do you see yonder cloud that's almost in the shape of a camel?" "By the mass, and it is like a camel indeed." "Methinks it is like a weasel." "It is backed like a weasel." "Or like a whale?" "Very like a whale." Any one who is at all accustomed to weigh medical testimony in relation to the therapeutical effects of remedies, and who will read over the introductory chapters of the *Organon* of Hahnemann, or any considerable passage of his *Materia Medica*, cannot, I think, fail to wonder at the laxity with which facts are admitted and conclusions set down upon authority, and under circumstances of contradiction and doubt which would damage a case of much stronger character than I have shown homœopathy *prima facie* to be.

When, for instance, we are told that a fatty discharge from the intestine is cured by olive oil; that measles cured a chronic herpetic eruption, and was found a preventive of hooping-cough; that small-pox is a homœopathic cure for inflammation of the eyes, blindness (paralysis of retina), deafness, difficulty of breathing, dysentery, etc.; that arnica is adapted for the healing of wounds and contusions, because it produces stitches in the side, sickness, anxiety, and other nervous symptoms which *sometimes accompany* wounds and

bruises; that belladonna is said to have cured hydrophobia (?) and to produce symptoms in the healthy *somewhat* like hydrophobia (about as like as the cloud to the whale); that squill cures pleurisy (?), because J. C. Wagner saw "a sort of pleurisy" come on under this commonest of all remedies (which was never accused of such a thing before or since); that camphor cures typhus fever (*febris nervosa lenta* of Huxham), because it produces insensibility, prostration, and diminished temperature in poisonous doses; and that it also cures cholera (I presume, for similar reasons); that wine is a good (homœopathic) remedy for inflammation (!)—(Crivellati, Augenius, Mundella, two other unnamed persons, and Asclepiades, are adduced as the authorities); when we hear these things, we are tempted to ask, what doctrine could possibly be named so absurd as not to admit of something like evidence on similar terms? But the climax is not yet reached. Hahnemann gravely proposes, as illustrations of the homœopathic law, the effect of the sunlight in extinguishing the brilliancy of the stars; of snuff in removing the impression of fetid odours; of the drum in preventing an army from being *terrified* by the roar of distant cannon; and other examples equally convincing!

Perhaps the most celebrated instances of the homœopathic law given by Hahnemann himself, and adopted with tolerable unanimity by his followers, have been these three:—quinine, or Peruvian bark, against intermittent fever or ague; belladonna, against scarlet fever; and vaccination, in reference to small-pox. In regard to these three instances, I shall make a few very brief remarks, without venturing on a detailed consideration of any of them.

The utmost that is asserted with any show of probability in the case of quinine, is that, when taken in considerable quantity in a healthy person, it is apt to induce *feverishness* and *headache*, with *furred tongue* and *nausea*. On these grounds, which are more or less plausibly maintained, it is asserted that quinine is homœopathic to ague. Here, however, it is to be observed that, on the same grounds on which quinine is asserted to be homœopathic to ague, it may be with equal propriety maintained that it is homœopathic to ephemeral fevers of all kinds, and even, inasmuch as all fevers

are "similar" in these respects to the alleged action of quinine, that its curative power ought to extend very widely over the range of febrile diseases; whereas we know that this therapeutic value of quinine, or of Peruvian bark, is actually circumscribed within very narrow limits; these remedies being quite as useless in most other fevers as they are useful in those of the aguish type, to which in reality their effects on the healthy system bear no *special* resemblance whatever. The whole case, therefore, as regards quinine, is this—that a substance which, in very large doses, *occasionally* produces feverishness, along with other effects, in the healthy is applicable to the cure of one particular class of fevers only.

The power of belladonna to prevent scarlatina when epidemic, and sometimes to cure it, was maintained by Hahnemann soon after the celebrated discovery of Jenner. Now, the homœopathic character of this instance depends upon two circumstances, both of which are, unluckily, after years of controversy and experiment upon both sides, still rather more than doubtful. The power of belladonna to produce a morbid state having any considerable resemblance to scarlatina,[1] is one so rarely observed, if it really exist, that many physicians have used belladonna largely both in acute and chronic disease, and not unfrequently also in healthy persons, without once seeing such an effect. On the other hand, the action of the remedy as a prophylactic in that disease has, in my opinion, been clearly shown to be quite visionary.[2]

The admitted power of vaccination as a prophylactic or preservative remedy against small-pox is claimed by Hahnemann as an illustration of the homœopathic law. Let us see by what reasoning this claim is maintained; premising that the most trustworthy medical authorities are content, in the first place, to admit the fact as a fact proved by experience; and in the second place, to connect it with the very reasonable, though

[1] We have seen above that belladonna is likewise homœopathic to hydrophobia. Now, as Hahnemann always professes to judge of the application of a remedy by the *totality* of the symptoms, and as there are few diseases more unlike than scarlatina and hydrophobia, it is difficult to understand this double curative action of belladonna.

[2] See an article by Dr. Warburton Begbie in the British and Foreign Med. Chir. Review, Jan. 1855, p. 77; and the succeeding controversy in the Homœopathic Journal and Monthly Journal of Medical Science for 1855.

not by any means certain, theoretical argument, that the vaccine disease *is*, in fact, small-pox under a modified form—less dangerous, both to the patient and to others—strictly local and non-infectious under all ordinary circumstances—but identical in essence with its prototype, and therefore carrying (as small-pox itself would do, and as most other contagious fevers do) the mysterious but well-ascertained power of protecting, within certain limits, against a renewed attack. If this theoretical explanation of an admitted fact be unsatisfactory (and I shall not presume to assert the contrary), what shall we say of Hahnemann's, which denies to the vaccine disease *identity* with small-pox, but asserts that it is *similar*, and because similar, curative. It is to me very clear that if the vaccine disease do not stand to small-pox in a relation of *pathological* identity, or similarity, that is, a relation founded on a common or a nearly common cause, it is scarcely possible to find two diseases, or at least two eruptive diseases, more widely different in that totality of symptoms to which Hahnemann refers as alone giving *homœopathic* similarity. Nay more, I maintain, and I think most practical physicians will bear me out in asserting, that there are diseases having greatly more resemblance, as regards symptoms, to small-pox than vaccinia has; diseases which are apt to be mistaken for small-pox (which vaccinia never is), even after close observation for some days, but which are not in any degree protective, and which may be followed by the true small-pox (if the patient be exposed to its infection), within a very few days. Further, Hahnemann admits that vaccination *does not cure small-pox when present.* It does not, therefore, perform the true office of a homœopathic remedy, according to the homœopathic law; it performs a totally different office, an office which homœopathic remedies generally do not perform; while these do possess, according to Hahnemann, that curative virtue which the vaccine disease confessedly has not. "To produce this effect (of cure)," says Hahnemann, "it *only wants that excess of power* which ought to accompany the homœopathic resemblance in order to effect a cure." He goes on to explain that, although deficient in power to cure, it is powerful enough to excite a disease similar to small-pox, and

so similar as to possess even that most mysterious and inexplicable of all the qualities of small-pox, protective virtue against a recurrence of the disease. Let those accept this explanation who will; to me it seems the mere jangling of meaningless words, alike incapable and undeserving of being treated as an argument.

But suppose that in these three instances, or in many more instances, a similarity between the action of the remedy and the symptoms of the disease had been pointed out, would that similarity establish the homœopathic principle in therapeutics? Most certainly not; because, amid the complex phenomena of disease on the one hand, and of remedial actions on the other, it can hardly happen otherwise than that there should be accidental resemblances; as there is, for example, between the action of an emetic and the sickness caused by the surfeit for which the emetic is plainly the proper remedy. To establish the homœopathic principle as regards this particular symptom, it would be necessary to prove, that in *all* cases of stomach-sickness the cure is to be sought in the artificial use of substances tending to stomach-sickness or something like it; and that the more sick the stomach the more is the homœopathic remedy in question indicated. The fact is, however, that the evidence of the homœopathic theory stands before us in "shreds and patches" only; we are never invited to take up any single class of symptoms, much less any single symptom, and to exhaust the consideration of it in relation to its appropriate remedy or remedies; on the contrary, we are asked to view symptoms in their most intricate combinations, and to seek for traces of similarity between the *totality* of the symptoms ascribed to the disease, and the *totality* of the symptoms ascribed to the remedy. Let any one, keeping this in view, look at a homœopathic work on the Materia Medica on the one hand, and a somewhat elaborate and learned exposition of nosological science on the other, and he will be at no loss to discover how systems are built up in medicine, and why they are of so unstable a character when built. The pedantry and cumulative labour of ages have given to each disease a farrago of characters of almost hopeless complexity; and the imagination of homœopathic "provers," which has ascribed to charcoal 930 symptoms, to

oyster-shell, 1090, to cinchona bark, 1143, has made the search after illustrations of the homœopathic law merely a matter of time and industry. To seek either the establishment or the rejection of that law by individual instances, therefore, seems to be a very unsatisfactory way of arriving at the truth. And with these remarks I close this part of the investigation.

II. *Examination of the Homœopathic Practice.*—Is homœopathic practice generally, or in particular hands, so successful and so consistent with the principles on which it professes to be founded, as to form a ground for admitting those principles to be true, independently of the evidence which we have already discussed? Such is the inquiry to which I now proceed.

The inquiry is one of considerable difficulty; but it may tend to lessen that difficulty if we observe that homœopathy must do much more than prove a *moderate* amount of success in order to entitle it to consideration from its own point of view. If homœopathy be that universal, sure, and trustworthy system which it claims to be, and if it be opposed to a system radically wrong in theory, and murderous in practice, as Hahnemann asserted, the difference between the results of the two methods ought to be the difference between food and poison, between light and darkness, between absolute success and utter failure. Further, we have a right to expect, as a legitimate consequence of the position claimed by homœopathy, that its professors shall have followed out its principles, and shall not shrink from their application in practice, either in acute or chronic, in severe or trivial diseases. With these preliminary remarks, I proceed to consider, in the first place, some of the practical results obtained by Hahnemann, as recorded by himself.

The first point to which it seems necessary to direct attention, is the degree of confidence with which Hahnemann carried out in practice his preconceived law of homœopathy and the range of diseases over which he extended it. There seems no reason to doubt that Hahnemann rigidly abstained from anything at all approaching to the ordinary use of drugs. At least, I am not disposed to question his state-

ments on this point. That he was very careful and precise in his dietetic regulations, and caused his patients to adopt a very strict regimen, is generally admitted; and that his energy of character, high pretensions, and great celebrity, induced many of them to repose unbounded confidence in him, is also more than probable. That he possessed, with a degree of that metaphysical haze so prevalent in the German mind, uncommon tact in shaping his course according to circumstances, is clear from every part of his writings. I think, therefore, that *apart from his use of medicines*, Hahnemann was probably a successful practitioner in a considerable proportion of the cases in which he was ordinarily consulted. This success he had in common with all other practitioners who obtain the confidence of their patients, and establish for them fitting rules of life.

When we come to consider his use of remedial agents, the first peculiarity, beyond the homœopathic law itself, which strikes us is the tenuity of the doses. The method of infinitesimal doses, as it is called, was not originally part of the homœopathic system, with which it has apparently no very obvious or necessary connection; nevertheless, it formed in the end a part of Hahnemann's creed, to which he was not less devoted than to the law of "*similia similibus curentur*" itself. The system of minute doses has moreover been embraced by most of Hahnemann's followers, some of whom, indeed, have pursued the idea of attenuation to a degree almost inconceivably beyond the most inconceivable of the original infinitesimal dilutions, while others have tended to revert towards more palpable quantities. I shall not follow out all the details bearing upon the process of attenuation alluded to; they are for the most part well known. A grain of the medicine is dissolved in 99 grains of alcohol, or alcohol and water; then one drop of this solution (1st dilution) is mixed with 99 drops more of alcohol; one drop of this further attenuation (2d dilution) with 99 drops more of alcohol; and so on to the 10th, 20th, 30th, or 600th to 1000th dilution as the case may be. The result of this extraordinary and inconceivable process of subdivision is stated by Dr. Simpson in the form of a calculation revised by competent mathematical authorities, and from which I shall give only the following illustrations:

—At the 6th dilution, had the entire original grain been furnished with its proper amount of alcohol, that quantity could have amounted to 13,000,000 gallons; at the 12th dilution, to a sea six times the size of the Mediterranean; at the 15th, to 46,000 times the whole waters contained in all the oceans of the globe; at the 30th dilution (the ordinary one employed by Hahnemann, but very much below those recommended by some of his followers), to a "quantity sufficient to make one hundred and forty billion spherical masses extending from limit to limit of Neptune's orbit, or a quantity equal to many hundred spheres, each with a radius extending from the earth to the nearest fixed star."[1]

A consideration of this strange doctrine (which was only feebly expressed by Lord Jeffrey when he said that an ounce of medicine, put into the Rhone at the upper end of the lake of Geneva, would physic all the Calvinists at the lower end,) excites a natural curiosity to know how Hahnemann was led so far (apparently) out of his way. The answer to this question is important.

Hahnemann did not fail to discover, as he has told us in the *Organon*, § 276, *et seq.*, that a homœopathic remedy "*always does harm when given in too large a dose, and does harm all the more in proportion as the dose is larger.* Moreover, the *more homœopathic* the remedy, the greater is the injury from too large a dose; the effects of a homœopathic remedy, under these circumstances, *being much worse than a similar dose of an allopathic medicine.*" From this proposition Hahnemann was gradually led into a series of experiments (for he says it is impossible that theory could decide the matter,) as to the necessary attenuation of a homœopathic remedy to avoid the consequence above indicated, viz., of its being more hurtful than an allopathic remedy in like quantity. The precise evil effects ascribed to the over dose of the homœopathic medicine are detailed elsewhere (*Organon*, § 156-7); they include not only the development of those powers of the drug which do not stand in exact relation with the symptoms, but in almost every case an *aggravation of the original symptoms;* or, as Hahnemann expresses it, "a small aggravation, which so closely resembles the primitive affection, that the patient

[1] *Homœopathy, its Tenets and Tendencies;* by Professor Simpson, p. 285.

himself supposes it to be an increase of his disease; whereas it is, in fact, a medicinal disease, very like the primitive disease, and surpassing it a little in intensity."

On the strength of these admissions, I claim Hahnemann as the first witness against his own system. It is plain that the reduction of the homœopathic dose to an insensible and preposterous minuteness, was determined by a fact which ought in reality to have determined the rejection of the system, founded, as we have seen it to be, not upon experience, but upon abstract reasoning. The first experiments, doubtless, revealed what subsequent experiments corroborated—that homœopathic remedies invariably aggravate the diseases they are intended to cure;[1] or, as he somewhat naïvely says, that "the artificial disease which the remedy has excited in the most suffering parts of the organism, goes the length of being hurtful." Hence the necessity of reducing the doses. And once involved in this train of false inference, Hahnemann did not hesitate to spring from one absurdity to another. The idea, indeed, that the curative virtues of remedies are *spiritual* or *immaterial*, led him to look on them as bearing no fixed relation to the bulk of the medicine; and all the nonsense about the influence of shaking and trituration in developing these "dynamic virtues," naturally followed.

Another point in which Hahnemann's system evidently gave way beneath his feet, was in relation to chronic organic diseases. It was impossible to assert that there existed any remedy directly homœopathic to cancer, caries, disease of the vertebræ, etc., etc. The consequence of this vital defect in the system (in connection with the general idea that remedies *must* be found for every disease) was the invention of a class of *antipsoric* remedies, as he called them, and the celebrated "*psoric hypothesis*," which even Dr. Henderson, who, after a

[1] Hering, a homœopathic expositor of Hahnemann's doctrines, is so distinct and concise in his statement on this point, that I quote the following passage, as given in the work of Dr. Epps, *Homœopathy and its Principles*. The "almost constant aggravation of the disease by the remedies which were chosen according to the new law, threatened to embarrass very much their trial, if not to render it wholly impracticable. To avoid these disagreeable results, Hahnemann adopted the most simple and natural expedient, viz., that of lessening the dose."

fashion, defends it, calls in one place, "perhaps the most unfortunate of his speculations." By this hypothesis, for which Hahnemann takes to himself immense credit, he refers all chronic diseases indiscriminately, with the exception of those due to syphilis and sycosis, and a few others, to a *special chronic miasm*, on which he confers the ancient name "*psora.*"[1] This *psora* is the "single source of innumerable morbid forms," and is to be attacked chiefly by a single remedy, sulphur, which Hahnemann maintained to be antipsoric, and homœopathic to the miasm of psora, though not presenting the usual homœopathic relation to the multiform symptoms of this disease.

In the case of the psoric hypothesis, there can be no doubt that Hahnemann falls into exactly the same course of reasoning which he inveighs against in the case of the allopathist—searching into the hidden causes of diseases, and placing the remedy not in relation with the manifest symptoms, but with the supposed nature of the disease.

On comparing, therefore, Hahnemann's practice with his theory, I find the latter to be contradicted by the former; firstly, because the theory of infinitesimal doses is clearly only a gilded mask to cover the bad effects which he is himself obliged to ascribe to sensible doses of homœopathic remedies; secondly, because the psoric hypothesis is clearly an evasion of the homœopathic principle in relation to a vast tribe of diseases, which it is to be presumed were rebellious to the homœopathic law. I therefore claim Hahnemann's practice unhesitatingly as a refutation of his own system; and ascribe so much of its success as was real to the operations of nature, aided by the hygienic, and especially the

[1] Dr. Henderson is quite correct in pointing out that Hahnemann's "psora" had no real relation to the *modern* "scabies." But it is inexcusable to affirm, as Dr. Henderson does, that the psoric hypothesis of Hahnemann was not, in fact, Hahnemann's. Among others, he has Hahnemann himself against him. "It has cost me twelve years of researches," says Hahnemann, "to discover this great truth, which was *unknown to all my predecessors and contemporaries.*" (*Organon*, § 80, note.) The fact is, that Hahnemann's doctrine is quite different from any of those which Dr. Henderson has quoted as resembling it. To saddle Hoffmann with Hahnemann's doctrine, simply because it is absurd, is too bad. Hoffmann had quite enough of nonsense of his own to answer for.

dietetic and mental influences to which I have adverted above. To the infinitesimal doses, *as medicines*, I ascribe simply no effect whatever.

Having thus examined my subject from every point of view to which there is access in the writings of Hahnemann himself; having carefully weighed the claims of homœopathy to consideration, both as a system of doctrine and as a method of practice; having found it to be, on the one hand, based upon assumptions destitute of proof, and inconsistent with known facts; while, on the other, it stands condemned by the very experimental evidence which has been adduced in its support, I might perhaps bring this inquiry to a conclusion. But it cannot fail to have struck those who are familiar with the position of homœopathy in the present day, that there is an obvious disposition, on the part of its adherents, to avoid the discussion of principles and of elementary facts, and to invite attention chiefly to the general results of practice in homœopathic hands, as the only true test of the value of the system. We hear every day of wonderful cures of isolated cases; of desperate diseases which yield to homœopathy in a way unknown to the old practice; of homœopathic hospitals in which the ratio of mortality is surprisingly low, and in which the most acute and formidable diseases are cured in the most astonishing manner. Statistical tables are presented to us showing the results of treatment in homœopathic and in "allopathic" institutions; and we are told that whatever becomes of the homœopathic law, a system must be known by its fruits, and of these the public can judge for themselves from the facts presented. "Common sense," says Dr. Henderson, in one of his earlier publications, "is *quite competent to decide* which of two systems of treatment is the best—that which has the greatest number of recoveries, or that which has not;" the *numerical* advantage being, of course, attributed to homœopathy, on the faith of the statistical tables to which we have referred. Besides this, the horrors of bleeding and blistering, bolus and draught, pill and powder, are constantly brought before us, and contrasted with the amenity and the slight disturbance to the system of the small sugared globules, or the colourless and tasteless solutions

in which the infinitesimals of the homœopathist are diffused. And upon these materials the public is invited to give its verdict, while the homœopathic law is thrown into the background.

I am in no way disposed to shrink from this aspect of the question, any more than from the others which have been already discussed. But I take leave at the outset, before stating the very few considerations for which there is room, to remark, that if there be anything which requires the exercise of a skilful judgment, and a specially educated critical faculty, it is precisely a question of this nature—one involving considerations of the most delicate, and moreover the most technical kind that it is possible to conceive. To refer the question between two systems of treatment, therefore, to "common sense," on the faith of *ex parte* statistics, implies a degree of insensibility to the true conditions of the inquiry, which only the blinding influence of party could possibly have produced in a mind naturally so acute and so critical as that of Dr. Henderson.

I shall take a single instance of the fallacy which may lurk under such a numerical statement as that to which Dr. Henderson refers. I select this instance from one of his own writings, not only because he is "*facile princeps*" among the homœopathists, but because, in questions necessarily to a certain extent personal, it is desirable to deal with those, and those only, whom we believe to be above the suspicion of intentional unfairness, however much warped and biased by what we cannot but regard as a false position. Dr. Henderson has taken occasion to inform us, in one place, obviously, though not statedly, for purposes of numerical comparison, that he had treated *homœopathically throughout* 16 cases of pneumonia, with *one* death. To this statement, considered merely as a statement, I do not object; but if we are intended to draw the inference from it, that the homœopathic mortality of pneumonia in Dr. Henderson's hands has been 1 in 16, then I must observe that such an inference, however naturally resulting from the facts stated, would be grossly incorrect. For in a detailed record of eleven cases of pneumonia, homœopathically treated, published in

the *Homœopathic Journal* for 1850, Dr. Henderson incidentally notices *two* very severe and complicated cases, in one of which he himself, in the other the friends of the patient, became dissatisfied with the results of the homœopathic treatment, and both of which cases ended fatally, after passing into the hands of another physician. Such events are known to be common in the practice of most homœopathists; the alarm of a really severe disease being generally all that is required to send men away from infinitesimals in quest of active remedies. Indeed, I suppose that few instances of really severe and fatal disease are ever treated "homœopathically throughout" in private practice; at least among those able to have a choice of physicians. But it is evidently a most erroneous calculation which would pass over these palpable failures of the homœopathic treatment, simply because they were transferred, possibly when beyond hope, into other hands. Had the two cases alluded to (and we have no security that there were not others) remained under Dr. Henderson's treatment, and died (as they most probably would in any hands), the mortality of his cases would at once have been altered from 1 in 16, to 1 in 6; which, considering the character of the cases reported, would have been a very high average indeed.[1]

A not less striking exhibition of the fallacies inherent in statistical statements of this kind, put forward in the interest of a system, is afforded by an examination of the results of treatment in the Vienna Homœopathic Hospital. It is now some years since I had occasion to publish an analysis of the reports of that much vaunted institution; and I

[1] A word of personal explanation may here be permitted to the author. Dr. Henderson will remember having made him the object of a very bitter, but, under the circumstances, not unnaturally violent remonstrance in a controversial work, as having publicly questioned his (Dr. Henderson's) good faith in relation to the above subject. The fact is, simply, that Dr. Henderson wrote under a total misapprehension, and evidently from a very unfaithful report, of the public lecture on which he comments. The author never did, either in public or private, at any time or in any place whatever, use language intended or, he thinks, calculated to bear such a construction. And as he never made the attack attributed to him, so he has never felt aggrieved by the retaliation. No names having been mentioned on either side, he has never alluded to the matter until now, and will not now go into any details.

am not aware of any reply to my criticisms in the least deserving of, or requiring, notice. It had been customary for the homœopathic writers and journalists to point triumphantly to these reports, as indicating results "far beyond the reach of any other mode of treatment;" and this on two grounds, 1st, that the general mortality was 6¼ per cent, which was vaunted as surprisingly low; 2d, that in particular, pneumonia, pleurisy, peritonitis, and other acute diseases, were treated with a success unknown in other hospitals. So prevalent was the idea that these statistics were unassailable, that several writers not favourable to homœopathy were led into giving almost unlimited credit to their results. Yet so completely has this credit broken down, as regards the first point at least, that Dr. Henderson himself (while defending, as it were, every inch of defensible ground) now admits the unfairness of the original comparison instituted by the homœopathists on this point.[1] The homœopathic hospitals have, in fact, by a somewhat strict comparison with those of ordinary physic, been shown to be systematically filled with those trivial and easily curable cases, which all considerable and well-filled hospitals are compelled, by the pressure of severe and fatal disease, to exclude. Thus, in the Vienna Homœopathic Hospital, consumption and organic disease of the heart, liver, and kidney, find place in exceedingly small proportion; while colic, diarrhœa, headache, sore-throat, chicken-pox, affections of the skin of an acute and curable kind, and similar diseases of other organs, swell the lists to a degree unknown in any considerable hospital established for purely charitable purposes. To give but one or two instances—out of about 6500 cases, the accumulation of several years, the *homœopathic* hospital at Vienna had 300 of sore-throat; while the *general* hospital of Vienna, admitting not less than 21,400 cases in a single year, had, in this enormous number, only 216 cases of inflammation connected with the mouth, gums, teeth, palate or tonsils, or about one third less than the cases of sore-throat alone in the homœopathic institution. Again, in the homœopathic hospital, there were 110 cases of chicken-pox, while in the Edinburgh Infirmary, there were

[1] *Homœopathy Fairly Represented*, p. 82.

only 2, out of a nearly equal aggregate of cases. On the other hand, for 276 cases of consumption in Edinburgh, there were only 98 so called in the Vienna Homœopathic Hospital; for 159 cases of diseased heart, 15; for 82 cases of diseased kidney, *none;* for 103 of paralysis, 5; for 33 of disease of the liver, 1; for 17 of diabetes, *none;* for 14 of neuralgia, *none;* for 18 of internal aneurism, 1; and so on. Yet with this very remarkable selection of cases, the mortality was actually higher by one-third than that of the average of English provincial hospitals; and was in fact shown to be only exceeded by those hospitals, in this country and abroad, which, from their situation and other causes, receive an enormous proportion of severe and incurable cases.[1]

Then, as regards the cases of acute disease supposed to have been treated with such surprising success in the Homœopathic Hospital, one fact may suffice to indicate the bias in the numerical statements. All the world over, catarrh of the chest or bronchitis is a very frequent disease, while pneumonia, as well as pleurisy, are comparatively rare. Vienna is no exception to this rule; for, in the general hospitals of that city, there are admitted 2078 cases of catarrh for 509 of pneumonia, and 427 of pleurisy. In the Homœopathic Hospital, on the contrary, the proportion is so completely inverted, that for 300 cases of pneumonia and 224 of pleurisy, there are only 15 of acute bronchitis mentioned, while all the other diseases of the chest together do not make up nearly the difference; thus showing clearly that every example of curable disease which could, however violently, be twisted into the semblance of pneumonia or pleurisy, was made to swell the list of these two formidable diseases, and thus to increase the apparent success of the homœopathic experiment. The case is even worse as regards peritonitis, a disease undoubtedly rare both in hospital and general practice; of which, nevertheless, 105 cases appear among 6000; the Edinburgh Infirmary showing in a similar total number only 19 of peritonitis.

These remarks will, I trust, suffice to show how very unsatisfactory are the results to be deduced from the exami-

[1] For the more full statement of the whole question, see the author's article on "Homœopathic Hospital Statistics," in the *Medical Times* for April 3, 1852, p. 341.

nation of either hospital or private practice as bearing upon the success of homœopathy. Nevertheless, I am not by any means inclined to deny that homœopathic practice is frequently successful in the treatment of disease; nay, that in certain cases its success, as measured by the result, may be not less than that of judicious, and a great deal more than that of injudicious, practice of the ordinary kind. A very large proportion of cases require the assistance of the physician simply as a skilled adviser; and that man is no true physician who does not quite as frequently dissuade from active drugs, as urge the patient to their use. In this class of cases the most rigid homœopathist, with his infinitesimal doses, is on a par, as regards medicine, with the physician, and possibly has even an advantage over him, if the faith in globules be, on the part of the patient, deeply rooted. But between the homœopathist, in such a case as this, and the unhappy apothecary who, from old habit, or for present emolument, will insist on drenching, and sickening, and narcotizing his patient alternately, after the routine manner still somewhat too common, and so well hit off by Molière in the "*Malade Imaginaire*,"[1] there is no comparison at all. The public will always play off the man who does nothing under a fine name, against the man who under a fine name unnecessarily tortures its bowels, drains its blood, and decorticates its exterior. And, no doubt, it is on the whole well both for medicine and its professors, that the Sangrado should, in the natural course of things, evolve the Hahnemannist with his infinitesimals, just as the curmudgeon of a father evolves the spendthrift of a son, as the Puritans evolved Charles II. and Nell Gwynne, as the "Grand Monarque" sowed the seeds of the French Revolution. We may be assured that nature's laws, in the remedy of abuses and absurdities, are not homœopathic, nor infinitesimal neither; it is not "*similia similibus*," but "*contraria contrariis curantur*."

The time when Hahnemann lived and wrote was singularly favourable for the first propagation of such a theory as

[1] "Clysterium donare
Postea seignare
Ensuita purgare
Repurgare, reseignare, et reclysterizare."
Le Malade Imaginaire, Troisième Intermède.

his. The century preceding had been eminently an era of systems and of hypotheses, each one more crude, and at the same time more fantastic than its predecessor. The Iatro-chemists had given way to the Iatro-mathematicians, salt and tartar to lines and triangles, and the attempt to reduce disease to a geometrical demonstration; humoralism had been shaken to its foundations by Hoffmann with his theory of spasm; and Boerhaave, with immense labour and erudition, but little practical tact, had attempted to construct an eclectic system, in which "error loci" and "spasm of the vessels" should hold a place beside "the spontaneous gluten," the "acid and alkali," as causes of disease. But the end was felt by the best minds to be vanity of vanities. The pathological knowledge of which the basis was laid by Berzelius in the chemical department, and by Morgagni, Hunter, Bichat, Corvisart, Bayle, and Laennec, in the anatomy of disease, was wanting to initiate a real advance. Hahnemann's speculation, therefore, fell upon a soil barren of new facts and teeming with old and worn-out hypotheses. It was one of a thousand theories, but it suited the temper of some men's minds, both by what it professed, and by what it rejected and abandoned. It was scarcely more absurd than the Brunonian system of medicine, and much less mischievous. It was in fact less injurious in practice than almost any of the exclusive theories which either preceded or succeeded it, and therefore it found favour with those with whom an exclusive theory was a necessity, but who had seen the mischief of the current hypotheses.

Among those who call themselves homœopathists in the present day, there are not a few who depart widely from the principles of Hahnemann himself, and not only administer what he called allopathic or antipathic remedies, but do so habitually, and confessedly with reference to the occurrence of cases in practice in which "the homœopathic principle cannot be of service to them, whether from its own present or necessary limitations, or their insufficient acquaintance with it."[1] Of course, from the moment when the homœopathic principle is regarded as subject to "necessary limitations," it

[1] Henderson's *Homœopathy Fairly Represented*, p. 25.

ceases to take rank as a law of nature; for to nature's laws there can be no real, however there may be apparent, exceptions; and it is not permitted to us to violate them, even in the way of omission, with impunity; much less to set up in opposition to them, in particular cases, principles of a contradictory character, or maxims founded on special, and therefore limited, experience. If, in so common a case, for instance, as constipation of the bowels, it is habitually found impossible to relieve the symptom in question by the administration of any of the numerous substances known as capable of producing a like condition in the healthy, and if, on the contrary, the adoption of laxative medicines, or of a diet and regimen tending *in the healthy* to relax the bowels, be habitually resorted to in place of, or in addition to, homœopathic remedies, then is homœopathy (as regards one very large class of instances) proved to be false; and therefore, if for no other reason, is the homœopathic law proved to be no law of nature. The system of Hahnemann himself is at least entitled to examination as a whole, on the footing of logical consistency; but with those who, ranging themselves under his banner, and adopting some of his formulæ, take shelter from the shower of opposing facts under the doctrine of exceptions and "necessary limitations," it is impossible to hold any argument about the homœopathic law.

The author whom we have quoted above claims for himself and for those who act and think with him the credit of "professional and scientific catholicity." If this merely mean that such persons are open to conviction as to the best course to be followed in each special case, argued on its own merits, and without reference to any general therapeutical law, such as the homœopathic law professes to be, then we are at one with them; but then, also, they cease to be homœopathists in anything but the name; and the questions between them and the medical world in general are of a very limited description—simply, indeed, the questions discussed in every medical journal, and in every lecture-room, with regard to the effects of particular remedies, or modes of treatment, in particular diseases. For it must always be recollected that the scientific physician of the present day affirms no general law of therapeutics, nor does he

repudiate homœopathic remedies in detail; he admits that the medical art consists in a calculation of data peculiar to each disease, or class of diseases, and often to each individual case; he admits, *as a fact*, that some of his remedies produce physiological effects similar, and many others dissimilar or opposite, to those of the diseases for the cure of which they are found to be adapted; but he denies that these circumstances form a legitimate ground for the adoption of homœopathy on the one hand, or of allopathy or antipathy on the other. From all such universal systems he recoils, knowing that they are not only indefensible and crude in theory, but calculated to communicate an injurious bias to practice; that they tend to exclude from view important considerations, founded on the plainest dictates of experience, and the most obvious applications of common sense; that they seduce the reason by a false show of simplicity, and confine the judgment within a vicious circle of propositions, not less doubtful in fact than they are dangerous in application. The true physician derives his chief claim to that character from his perfect intellectual and moral freedom. Untrammelled by the shibboleth of a party,[1] and undisturbed by the fantastic

[1] There cannot be a more striking proof of what is here stated as to the completely free and unsectarian character of medicine in its highest sense, than the outrageous attempts which are constantly made by homœopathic writers to fix upon "the old school" names which all physicians repudiate, and principles of action which no one ever thought of until the time of Hahnemann. The latest attempt at such a nickname, and such a principle, is the following:—In a recent controversy, Dr. Henderson replied to the charge that he occasionally used remedies not falling within the principles of his party, with a *tu quoque*, as follows:—"Men who . . profess themselves to be allopathists often employ remedies which they admit to operate homœopathically; . . it is incumbent on them honestly to restrict themselves to their sectarian principle of '*diversa diversis curantur*,' before they can consistently stigmatize others as dishonest for openly advocating a more comprehensive creed."—*Reply to Dr. Simpson's* (first) *Pamphlet on Homœopathy*, 2d edition, p. 83. Now, without entering on the personal question between Dr. Henderson and Dr. Simpson, we may fairly ask who ever heard of this "sectarian principle" till the above pamphlet was written? Render it into English, and the nonsense is apparent at once. "Different things are cured by different things" is a watchword which could no more hold a "sect" in physic together than the profession of a belief in "nothing" or in "everything," could hold a religious party. The "men professing to be allopathists" are likewise a figment of the imagination; there are no

hypotheses by which men seek to reduce the variety of nature to a false semblance of unity, he is able to devote his best attention to those practical questions which emerge at the bedside, and not in the study. He finds those questions, small and peddling as they seem to minds intoxicated with science or with learning, to be of very vast importance, and to involve in their answer a very solemn responsibility. He seeks their answer, accordingly, from all available sources;—from previous personal experience, from credible and unbiassed testimony, from cautious induction and analogy, from legitimate theory, finally from the march of events in each special case, watched, if necessary, from hour to hour, and from minute to minute;—from all these sources he gathers the elements of a judgment, which he rarely submits to revision on the ground merely of a remote or abstract hypothesis. The questions which he has to resolve are often obscure and difficult, the results at which he arrives confessedly uncertain, perhaps often erroneous; but they are questions which *must* be met, results which *cannot* be evaded. His concern for his patient, therefore, and his own peace of mind, equally demand that he shall occupy a position free from sectarian bias, and from the narrow bigotry of a stereotyped therapeutical creed. It is his business to use, not the remedies of this or that individual, this or that party, but those remedies which experience and science combine in recommending as capable of effecting the specific purpose for which he uses them. If the use of those remedies be further justified by a satisfactory theory of their action, it is well; but, if not, he is content to wait for further light, and to reap, in the meantime, an advantage the nature of which he

such men; the name has never been used as the symbol of party, and indeed is utterly unintelligible, although constantly repeated by Hahnemann and his followers as one of the parrot-cries of controversy. Even the alleged antipathic principle, "contraria contrariis opponenda," which does look something like a general principle of action, was never asserted as such in systematic medicine, until Hahnemann fished it up into the light of day out of some dark corner in the Hippocratic treatises, where it is set forth as a special maxim for the treatment of certain kinds of disease. Although true enough in its way, the maxim had, long before Hahnemann wrote, been consigned to the tomb of all the Capulets, and become food for—commentators.

does not profess to understand. True science and safe practice require that he should not only desire knowledge, but should be free from all suspicion of presumptuously overleaping the barrier which divides our knowledge from our ignorance.

It is the misfortune of homœopathy that its votaries, like those of all exclusive sects, never can occupy the position above defined as that of the true physician. If, indeed, their leading principle had been an axiom, or self-evident truth, its exclusiveness might have been justified. But even in this case it had better have been tacitly assumed or calmly maintained against discussion, than have been made the ground-work of those virulent attacks upon the convictions of others, which, as we have seen, formed the most prominent part of Hahnemann's literary labours. By ungenerous and unfair treatment of his adversaries, by an arrogance and presumption which, if not allied to madness, are indicative of the most insufferable personal vanity, and by a mode of dealing with facts which shows but a very slender regard for the modest limits of truth, Hahnemann from the first placed himself beyond the pale of ordinary scientific discussion, and provoked retaliation, both of a moral and a material kind, which I am not prepared in all cases to justify. That a similar spirit of self-exaltation on the one hand, and a somewhat similar disposition to make reprisals on the other, still continue to characterize this unhappy controversy, is but too true. Indeed it is obviously part of the policy of homœopathy to encourage this strife; to flaunt in the faces of physicians the banner of its exclusive dogma, and to perpetuate the use of nicknames associated with every kind of bitterness. I have been desirous, in this article, of adding as little as may be to the exasperation of the contending parties. Although in duty bound to state clearly and strongly my own opinions, I have endeavoured to do so, without distorting or calumniating those of the homœopathists, whom it has been my anxious desire to represent accurately according to their own authorized sources of information.

W. T. G.

INFANTI PERDUTI.

Much they reck of your praise and you !
But the wronged great souls can they be quit
Of a world where all their work is to do,
Where you style them, you of the little wit,
Old Master this and Early the other,
Not dreaming that Old and New are fellows ?
BROWNING'S *Old Pictures in Florence.*

WHETHER or not defeat may often be greater than victory, as involving a higher success than that at which the struggler aimed, and "to nobly die" may be called the first, rather than "the second, glorious part," it is at least certain, that

The dread strife
Of poor humanity's afflicted will,
Struggling in vain with ruthless destiny,

excites a profounder interest in the hearts of men than any which can be aroused by the most complete and conspicuous success. Such is most evidently the case when the struggle finally results in victory, but too late for him who has borne the heat of the battle; for then, defeat is just victory denied victory's reward. The forlorn hope of the assault, the martyrs of the churches, early patriots, pioneers of civilization, discoverers of truth, and the poets in their misery dead, obtain, at last, the truest and most affectionate acknowledgment, even though certain weaklings may at times harp upon the theme so as to render it distasteful to weaklings of another kind. All other interest taken in the past is poor compared with that which attaches itself to a few men of high aims and tragic destiny. Columbus as mere high admiral and successful viceroy could have been little to us, but his story, with

its pathos and romance, nerves us to command the present and anticipate the future, for it is a brief striking representation, which all can comprehend, of the struggles, hopes, and conquests of humanity. The thoughtful majesty, delicate beauty (well contrasted with the casque and sword haply laid aside for a time), and blue clear pensive eyes of his portrait in the Museo Reale of Naples, indicate a nature at once so gentle and so powerful, consequently so generous and so brave, that merely to recognize that nature lifts one to nobler moods of mind. And when, recalling his story, we think over his single-handed battle and denied reward—how that immortal, as Homer would have said, was tortured for the sake of mortals, we may be both contented and proud, if to us also, as to him and to Achilles and the Greeks, it be given "to accomplish painful wars, till we, even each of us, shall perish." For the wool-carder's son had long to struggle unsuccessfully with the petty conditions necessary to the realization of his idea; his heart remained undaunted through the bitter years of his "long wandring woe;" his soul was sufficient to itself on that unknown deep, where it must have been as lonely as the Ancient Mariner's, when even God scarce seemed to be; and though he did not meet with the laughing incredulity which rewarded the Phœnician who first sailed to the *South* of the sun, yet after finding the path to the New World,—that, with its Mississippi and Amazon valleys, its ancient forests, broad table-lands, and rolling prairies, was to provide for the unborn generations of Europe,—after twenty years' painful service to the sovereigns of Spain had left, as he said, his body infirm, and every hair grey, he had to complain that his very frock had been taken and sold, that he had not a roof of his own, and lacked wherewithal to pay his tavern bill. Even at his death (though they gave him a "royal funeral") he was a scarcely tolerated beggar, and it was then that, with failing breath, he uttered the words, sublime in their touching simplicity,—"I, a native of Genoa, discovered, in the distant West, the continent and isles of India." Proud as Scotsmen are of King Robert Bruce, his personal success has diminished his influence; and the national spirit has been more effectually nourished by the story of the faith of Wallace, who desired no personal reward; saw, with

the instinct of genius, the future of his country; and, when betrayed, insulted, and condemned to ignominious death, could remain the hero in spite of the surging crowd eager to see him die, the submission, for a time, of Scotland to the oppressor, and the executioner's ruthless hand. Portuguese history (to take an instance from the poets) can present no spectacle more interesting than that of Camoens, as we may easily conceive him, sitting on the stairs of a convent, floating, as it were, in a cloud of golden light between the blue frith and the blue sky of that "delicious land;" waiting, in his feebleness, for his grey-headed Javan to bring him the melon-rinds, and such other scraps of pig's and poet's food as were to be gathered on the streets of Lisbon; recalling, as he watches the white sails below, red African and Arabian sands, the palm-fringed coast of Malabar, intricate China seas, and all the far memories of his troubled wandering life; mourning over his country's degeneracy, as his one eye beholds, in prophetic vision, Goa's wasted state, and the descendant of Vasco de Gama in the nineteenth century glorying in being an English sahib's butler and the son of a sea-cook; but still thinking with love, not bitterness, of the *ingrata patria* to which he had returned, with his rich prize, *A Lusiada*, only to conclude it, ere he sunk into a pauper's grave, with the lines Mickle pointedly paraphrased:—

> Enough, my Muse, thy wearied wing no more
> Must to the seat of Jove triumphant soar.
> Chill'd by my nation's cold neglect, thy fires
> Glow bold no more, and all thy rage expires.

In so far as the forlorn hope of humanity is composed of such men as the two first of those I have just referred to, it commands the veneration of all reasonable beings, whenever judgment is purified by time; it is acknowledged that such men are, as Mohammed said, "sent as a blessing from the Lord." But in that dread strife, never ending and never promising to end, between destiny and human will, there are other shapes to which many eyes are turned with almost a deeper interest than towards those who stand so grandly and so calm. There are those to whom the reason firm and temperate will appear to have been denied, or rather denied

in that measure which was necessary to sustain them against the roughness of their fate, or enable them to control their own destructive passions, and who, in consequence, have wrathfully performed deeds which made them a terror and a shame, or else

Have sunk, extinct, in their refulgent prime.

Of those who have failed, knocked under in their life-battle, some appear in themselves not less great than any of more happy fortune, but it is chiefly the tragic character of their lives which gives them all their peculiar places in the memory of the world. No fat livings, no soft pillows of serene stupidity, no noble consciousness of an undivided soul were given to them while on earth; and it is as something very different from "gods and heroes" that they "people the immeasurable solitudes of time;" yet, looking back on their pale disfigured faces, where the wrath of a Titan is so often blended with the weakness of a child, and the fury of a maniac with the light of immortal love, it is no weak unintelligent useless pity which loves to dwell there, and to find there, if possible, instruction and hope. This pity almost ignores the question as to whether the cause of the misfortune may have lain in the individuals or in their environment. Instinctively the ordinary judgment of humanity refuses to judge harshly of those whose very degradation has had a humanizing influence, and without very clearly seeing wherefore, without being able to see, or willing to admit, that the common ground is general gain by individual loss, classes together all the unfortunates, all the lost children, on the ground of their failure when alive, without paying much attention to the character of that failure or the measure of their ultimate apparent success. There is great kindliness in such phrases as *Enfans perdu*, *Infante perduto*, *Gens perdus*, *Fille perdue*, and the *Forlorn Hope of Humanity*. Our notion of a forlorn hope is, destruction to the individuals composing it, but a clear gain to the force from which they are selected. Doubtless, an entire army partakes of this character, and we may speak of the whole human race as *Gens perdus*, life being, as some one has acutely observed, the disease of which we all perish; but

the phrases are usually applied to persons remarkably and eminently unfortunate, whose work, whether it be called good or evil, attracts general notice, and indicate, when so applied, an unexpressed, perhaps unconscious, judgment, which is well worthy of a little consideration.

It cannot be denied, however, that a certain class of moral critics view the subject in a different light. Entertaining very various theories among themselves as to the active source of evil, but deeply impressed with the fact of individual responsibility, they are in the habit of ascribing the error and failure of any individual to that individual himself, at least so far as direct responsibility is concerned, for most usually they postulate a principle of evil. They have very little patience with excuses of frailty, and holding by the doctrine, *sic vita, finis ita*, highly approve Randle Cotgrave's definition in his old dictionary, of the *Enfans perdus*, as "lost, perished, forlorne, past hope of recovery, cast away, forgone, omitted, overslipped, run or fallen away; also lewed, naughty, wicked, ungracious or past grace." They say that the head is hurt by being knocked against the wall; that each man should adapt himself to the conditions of his existence. Assuming perfection and complete happiness as the normal condition of humanity, they apply to every case the doctrine of Eliphaz the Temanite, "They that plow iniquity and sow wickedness reap the same." Consequently, they have a very simple, if not altogether satisfactory, explanation of the aberrations of men of genius, and so far from excusing, they judge these most harshly of all—

> For sweetest things turn sourest by their deeds;
> Lillies that fester smell far worse than weeds.

Any extraordinary combination of mean frailty and noble feeling argues only the greater guilt. Burns was too fond of toddy and strapping queans; Byron gave himself up to what holy Saint Bernard stigmatized as "delights of the flesh with miserable women;" Marlowe also drank and dissipated, and so died cursing in his thirtieth year; Tasso paid the penalty of his presumptuous love; the heathens, ancient and modern, lived in error. They even regard the *Infanti perduti* with a species of horror, and apply to them that singular passage in

the Epistle of Jude, where those who despise dominion, speak evil of dignities, and dream of things to come, are spoken of as "clouds without water, carried about of winds; trees, whose fruit withereth, without fruit, twice dead, plucked up by the roots; raging waves of the sea, foaming out their own shame; wandering stars, to whom is reserved the blackness of darkness for ever." In this view there is much important truth; it is impossible to deny that many of the most unfortunate men of genius have been great sinners, in the ordinary sense of the word—have been devotees of him whom Buddha called the Lord of Pleasure and the God of Death, and so have destroyed their own balance and calm.

But such an admission goes only a short way, and it remains to be considered whether those who condemn the frailty of men of genius are not like the travellers who reviled the plane-tree for its uselessness while they were resting under it, sheltered from the burning mid-day sun. Pain or suffering has two sides, and a twofold relation. On the one side, it is connected with error and misfortune; on the other, it is related to further development and real success. The surest evidence, when general views are attempted, of a shallow judgment, is inability to distinguish between the pain which is generative and that which is lethal. Man enters into life through suffering, and in suffering he passes away; in his successive acts or states of being the same law holds good. Hence, even the error and suffering of some men is the very condition necessary to the development of their genius; but in such cases, the error and suffering do not spring so much from the naturally evil bent of their nature as from the great distortion of that nature in its development. Evidently, the fate of any one must depend to a large extent on his own original nature, but that is only one of many conditions affecting the result. The effect of circumstance is so palpable that it is generally ignored rather than denied by harsh judges. Yet can it only be fully appreciated by a small class of persons, for men of poor and narrow nature, devoid of that original power which is its own law, find their safety and happiness dependent on existing laws or arrangements, and so, making themselves the measure of the universe, cannot comprehend how to others these

arrangements can be anything but useful. Consequently, though they may sometimes admit, they cannot realize the fact that (arrangements being for the benefit of the mass) circumstances which are protective to men of ordinary character may even prove inevitably destructive to men of better and stronger souls. Thus the effect of outward circumstance is the first and most obvious consideration which makes us gently scan our brother-man, and hesitate in condemning the *Infanti perduti.*

In truth, the more steadily we look at, and the more distinctly we see any man's history, the more inclined are we to admit that the struggle of every human soul is after good. As a modern illustration of this old opinion, I may take here the case of Edgar Allan Poe, the late American poet. He has been held up to public view as a sort of moral monstrosity—a union of the god and the beast,—showing how pure poetic genius may be united not only with the most degrading weakness, but with basest falseness and fiendish hatred;—all which disappears on closer examination, and condemnation gives place to pity. Unfortunately Poe, when dying, appointed the Reverend Rufus Griswold his literary executor, perhaps from a desire to afflict that person, or as a last stroke of sarcasm against the country which had done him to death. Griswold being, as recent events have disclosed, not quite immaculate himself, assumed hypocritically an over-moral and respectable tone. Moreover he seems to have had an old grudge at Poe, who once had the audacity to write to him for the loan of five dollars. It is true that, as he drily informs us, "no further correspondence" passed between the parties for more than a year after the presumptuous request, but the event seems to have damned Poe's moral character in the estimation of Mr. Griswold. Strongly impressed with a bad opinion, this literary executor readily gave credit to a great variety of stories, ill-authenticated and capable of very various explanation. Mr. Willis, Mrs. Osgood, and various other credible persons, mention that they heard sometimes of Poe's mad conduct, but that they themselves never saw, nor certainly knew of, anything of the kind. Willis, in particular, mentions that, *misled* by reports, he expected scenes of violence and neglect of duty when Poe be-

came his sub-editor, but that nothing of the kind ever happened: day after day, punctually at nine, the poet made his appearance, and bending his sad but beautiful face over the mud-sprinklings of American journalism, industriously performed the work he had to do. Now I am far from believing that Poe, with his impulsive nature, could persist thus, without natural exasperation and furious leaping in the harness he could not altogether shake off; but I see no reason to suppose anything specially wicked or weak in order to find an explanation of many stories which may have been told about him. It may easily be conceived that when he was in the hands of some barbarian to whom he had been sent with a letter of introduction amounting to this—"The bearer is a man of some imagination, but he is *very* poor, and we drudged him"—there might be misunderstandings enough, imputed neglect of duty, and violent scenes, in all which affairs Poe, being "very poor," was of course in the wrong, but most likely was still more wronged. It is conceivable that when a Dr. England, smarting under deserved criticism, published a card intimating that he had several times inflicted personal chastisement on the poor poet, the base falsehood might sting a man of quick sensibility into a very frantic state, which many would interpret as madness or intoxication. The human mind is fond of monsters, and readily produces them when it cannot get them made to hand. Stories get all their finest points by passing from mouth to mouth, and there is no reason to credit more than half of what was said about this poor American, by those who were unable to appreciate his character, motives, and peculiar sufferings. Half of his monstrosity thus disappears, and the other half may easily be explained so as to render credible all along what he said of himself and his wife:—

> I was a child, and she was a child,
> In that kingdom by the sea.

For we must remember that, from infancy, he was fatherless, motherless, without any ties of natural affection, and taken pride in only as a prodigy by his adopted father. Such a starting was, with one of his nature, quite sufficient to cause an isolation like that of a demon. In his impetuous youth, when his "heart was volcanic," and, literally speaking, there

was nothing to guide him but his own nature, which, however pure, was impulsive, he got into scrapes, but none which argued any essential evil, or different from those which befal most promising youth. Like Byron, untaught in youth to tame his heart, with his intellect unduly developed (as may be seen in the portrait affixed to the edition of his collected works), and his love of excitement too liberally gratified, his brain could not fail to get a touch of phantasy and flame, not likely to be removed by his solitary wanderings in Europe. The final quarrel with his adopted father threw him upon the world—upon "the dungy earth," which, Shakspeare says, "feeds man and beast alike," but which requires to be solicited with a certain wild-beast fury not usual in poets; and his was a nature certain to be goaded on to suspicion, drunkenness, and insanity, by mean toil in which his mind could take little interest, alternations of poverty and plenty, and galling dependence for employment on men far his inferiors, who made him groan of "the secret of a spirit bow'd from its wild pride into shame." In that rude but mixed state of society which combines the brutality of barbarism with the sense of civilization that incapacitates men of finer souls from warring like savages, in that miserable life to which he was condemned—that theriomachy or *cum bestiis pugnare* into which blind fortune threw him, it was inevitable that he should either "die or be degraded." Yet even there we may recognise the poet to the end, and sorrowfully believe him when he sung—

> If I could dwell
> Where Israfel
> Hath dwelt, and he where I,
> He might not sing so wildly well
> A mortal melody,
> While a bolder note than this might swell
> From my lyre within the sky.

His very degradation is a proof of that, because though it was hurried on by the intoxication to which he had recourse in order to regain glimpses of the poet's Aidenn, whose gates, he fancied, were closing against him for ever, even in that respect it consisted only in paying a high price out of his life for a purely ideal pleasure, otherwise by him unattainable, and

intoxication became a cause of his ruin and death, only because it was a result of increasing disorganization and insanity. "One man," says Mr. Browning,

> Goes mad, and from the wreck
> Of what he was, by his wild talk alone,
> We first collect how great a spirit he had.

Still more true is it that, when a man goes *mad*, we may learn how *bad* a spirit he had. Among mad persons that we meet, what frightful inner depths of cruelty, baseness, hatred, and foaming uncleanness are disclosed! But though Poe was evidently partially insane all his life, and latterly wildly so, though his crotchets, foolish fancies, absurd likings and dislikings, find their way into his writings repeatedly, being even prominently and disagreeably thrust forward, we find nothing but most pardonable frailties of a highly imaginative affectionate nature, too keenly sensitive to praise and blame, and incapable of being guided by external law. More threadbare appeared his clothes; more attenuated was his form; wilder grew his madness; more passionate his love of injurious excitement, whether from ordinary stimulants or from extraordinary conceptions; the keen intellect which flashed into the secrets of the physical universe wasted itself in playing fitfully over a *mare tenebrarum;* the windows of his soul were darkened, and the daughters of music brought low—yet nothing remarkably evil appeared. The madman laid open and described his mad world, so we may see what manner of man he was. It has been questioned whether all men are not mad at bottom, and certainly men of genius are most frequently something like it; Hercules, according to the old story, was afflicted with madness as the punishment for his being so near the gods; Shakspeare strikes me, in his writings, as sometimes insanely wanton. Not how well or how ill madness is covered over and kept down is of importance to us, but what its covering produces. And Poe's bore such beautiful flowers of poesy! In so far as he was compelled to write for life, and partially suit popular taste, he is morbidly horrible in his stories, making himself the beau ideal of a detective-officer in a world which pressed so close upon him that he could see little good in it, as the best means of

getting through with that sort of writing pleasantly. Very extraordinary is his own peculiar world. Light streams from lurid seas up turrets and pinnacles from which Death looks silently down. Ghastly moonlight shines over illimitable deserts, where the lonely demon sits in the shadow of the tomb, laughing hideous laughter, while the lynx that dwells for ever in the tomb comes out and lies down at the feet of the demon, "looking at him steadily in the face." The curse of silence is upon a region where rivers of blood slumber amid poisonous flowers; and high upon a grey rock is seen the figure of a man with the features of a deity, wan with terror. Dim shadows wander, talking unearthly tongues, over the dim plains of Helusion. White-sheeted memories of the past flit across moonlit glades. Eternal ships, with immortal sailors, float for ever, hopelessly, on seas of darkness. The released spirits of beautiful men and maidens tell wondrous things concerning immortality and other states of being. Lost poets stand, gazing into blackness, on the Night's Plutonian shore. Rhyming chiming bells yield sounds of joy and horror. Stricken eagles droop on thunder-blasted trees. But far away, in happy stars, imagination revels in perfect life. And pure lovely female forms are seen in all varieties of character and circumstance: now a little child loves the young poet with such love, that her high-born kinsmen, the angels, not half so happy in heaven, bear her away; the violet-eyed Eulalie becomes his blushing bride; in enchanted far-off isles, or in valleys beyond infinite woods and flowery savannahs, the mild-eyed stars look down joyfully on love which is innocent of earthly bitterness; sainted maidens sit on golden thrones beside the King of Heaven, or their footsteps gleam in ethereal dances by the eternal streams; and even the loathsome things of the grave yield sweet music to the sad-hearted poet as he sings—

> My love, she sleeps! Oh, may her sleep
> As it is lasting so be deep!
> Soft may the worms about her creep!
> I pray to God that she may lie
> For ever with unopened eye,
> While the dim sheeted ghosts go by!

When, even in his madness, this poet was so gentle and so

beautiful, what might he not have been in the place of Israfel? And if any further proof be required that his was a pure soul, struggling helplessly in entanglement and darkness, it may be found in his love for his wife and his mother-in-law, and in that mother's love for him. How simple and touching these lines!—

> My mother—my own mother, who died early,
> Was but the mother of myself; but you
> Are mother to the one I loved so dearly,
> And thus are dearer than the mother I knew
> By that infinity with which my wife
> Was dearer to my soul than its soul-life.

Mr. Willis tells us that that mother-in-law loved him to the last, covered his failings, got his stories sold, wept and pleaded for him. All which means, let us consider, that she who gave him her daughter and had most reason to complain of all his failings; who tended him in sickness, knowing any transient shades of anger, who was often beside him when reason had fled, imagination was degraded, from his white lips all the evil that was in him foamed forth, and in his delirium he uttered wild words to the hideous throng of wild shapes which were passing across his brain,—that she could not be alienated from him, but still loved him, with that womanly love before which man's harsher judgment must be mute, as before the infinite pity to which even the best must look for pardon,—loved him so, that her's was the only hand "to wash his scarred face," her's the only voice to bid him "rest in peace, the noblest of his race."

So powerful is the effect of circumstance, that the contemplation of such cases as that of the American poet is almost calculated to make us overlook the want of internal balance which, as well as the untoward outward circumstance, is necessary to the ruin of any man. Goethe says, with his usual mild wisdom, "Truth belongs to the Man, error to the Time. Hence we say of an extraordinary man, *Le malheur des tems a causé son erreur, mais la force de son âme l'en a fait sortir avec gloire.*" But such statements are only half truths, and require to be counterbalanced by opposite statements equally strong. The writer just quoted dwells repeatedly on the unimportance of the circle in which any man is called to

act, if only he act in it honestly and fitly—a doctrine which, absolutely considered, is quite absurd. So also, Mr. Carlyle, who can vindicate character so warmly and so nobly (especially when his hero is a Frenchman and transcendent blackguard), pointedly declares, in his Essay on Burns, and often in his other writings, that the cause of any man's ruin must lie in the man himself, because death is the worst and last evil which untoward fate can inflict, and death can be triumphed over. A juster statement of the case is this:—Whatever imperfection there may be in that greater life we call circumstance, any man to be ruined by it must, as regards his own nature, participate in that imperfection.

Then the question arises, What is it to be ruined? Each man must pour out his heart's blood, pure or clotted, hastily or slowly, to the last drop. What right have we to praise one way of fulfilling life as natural and satisfactory, and to condemn another as unnatural and imperfect? The acorn that falls into fruitful soil grows into a magnificent tree, while that which is blown into a cleft of the rock springs up a miserable stunted thing; but, in the great economy of nature, the force of the last is not thrown away; it breaks down rugged stones, and leaves green grass where before there was only lichen. It is a narrow and altogether contemptible view of human life which ignores the necessity of labour, pain, bungling, sin, and ruin. Existence, so far as known to us, does not float in the dark void because of its spontaneous levity, but supports itself there by means of its incessant effort. Like the albatross of the common sailor's fancy, it can only have rest and sleep by being content to sink *down* from the height which it has gained. We should not, then, be hasty in condemning any manifestation of life, and, in particular, in regard to men of genius, it becomes us to inquire whether their very function as such is not dependent on misfortune lying in themselves or in their environment. The Arabs say that shooting-stars are stars hurled by the hand of God in order that *Sheytan Jinn*, or evil genii, may be struck and destroyed. Other stars move calmly under the action of eternal law, but these gleam suddenly through the startled deep, and the star and the demon both fall shivered. Such "wandering stars" are the unfortunate men of genius; and it is always for great

ends, otherwise unattainable, that they are cast into outer darkness. Were it not so their artistic products would be quite valueless.

> And even they whose shattered hearts and frames
> Make them unhappiest of poetic names,
> What are they, if they know their calling high,
> But crush'd perfumes exhaling to the sky?
> Or weeping clouds, that but a while are seen,
> Yet keep the earth they haste to bright and green?

In Æsop, a countryman remarks to the shell-fish he is roasting—"O ye Cockles! being about to die, why do you sing?" A similar pathetic question might be put to unfortunate artists; and in both cases an acute observer might perceive that without the roasting there could be no singing, or at least none of that peculiarly affecting kind which alone can pierce the dull ear of the world. There is evidently some connection between the misery of a man's fate and the valuable products which he leaves. Literary men and artists of even the greatest activity, who in life are highly prosperous both outwardly and inwardly, such as Titian, De Vega, and Sir Walter Scott, do not seriously touch the heart of the country and of the world. Shakspeare is often adduced as an exception to this rule, but those who so adduce him have failed to appreciate the inner spirit of his writings, and have not given due weight to the argument of his lines,

> Where words are scarce they are seldom spent in vain;
> For they breathe truth that breathe their words in pain.

Like Buddha, Homer, Goethe, and most of the highest class of men, he indeed contrived to stand a little above his situation, but only just above, and after having nearly perished in the struggle to surmount it. *Titus Andronicus*, in its present shape, bears the same relation to the rest of the Shakspearian drama as do the *Werther* of Goethe and the *Robbers* of Schiller to the later productions of these poets; and it indicates sceptical despair and extraordinary gloom. Coleridge, according to Mr. Collier, has spoken of this drama as mere pandering to the vulgar taste for blood and horror; but that is the most superficial and doubtful of its aspects, for the horror lies not so much in the mere revolting incidents

as in the undertone of sadness and despair, and the way in which these revolting incidents are presented as representative facts of human life. In it, the young poet believes that "the gods delight in tragedies." Doubting eternal justice and existence, he makes the clown reply: "Alas, Sir, I know not Jupiter; I never drank with him in all my life." With Titus he declares:—

> For now I stand as one upon a rock,
> Environ'd with a wilderness of sea,
> Who marks the waxing tide grow wave by wave.

And the personal meaning of these, and innumerable such like passages, may be safely assumed, for in character and tone the entire drama is an assertion of the "Everlasting No," and one implying moods of mind which no mere dramatic sympathy could, without experience, ever fathom. This dark humour was subdued by Shakspeare, but still *Titus Andronicus* affords the key to the deepest meaning of his poetry. In all his dramas he is more or less in the awful presence of that Horror of the Night against which Mohammed prayed. Even his jokes, as for instance, Ancient Pistol's braggart speeches, have a melancholy meaning. With Falstaff, he wishes that it "were bed-time and all well." There is an inner voice mingling its tones of infinite sadness with the sound of armies, blythe maidens' laughter, and the fairies' song—a low sweet voice crying, "Give me to drink mandragora," singing of "Souls wandering in the air," "to darkness fleet and solemn shades of endless night;" or in deep passion saying,

> I will encounter Darkness as a bride,
> And hug it in mine arms.

Shakspeare lived in that middle position in which the great artist must be suspended, where, like Melanthius, "for a long time, being alive, he may suffer terrible griefs," in order that he may greatly influence his fellows. Is not his life, so far as known to us, a proof, that had it not been for his necessities and his sufferings, he would have written nothing? He also, like the cockles, required to be roasted, that he might sing.

Those who believe in pure nature and the law of life cannot but allow that the connection between the fate and the products of remarkable men arises from the very nature

of things, and, being a condition of existence, is a provision for the well-being of humanity. Even others may readily allow so much; for Plato's κακὸς αἰὲν ἐχων ὀυδεἰς, which has always been an axiom with the better class of thinkers, remarkably underlies popular judgment at present, and the notion of moral merit and demerit is being rapidly modified in the ordinary thought of Europe, through the knowledge of the laws of crime which we have been forced to acquire in order to check the growth of crime and the organizing of criminals which attend high civilization. We do not any longer hold that cockles are roasted for their sins, and sing from the natural depravity of their hearts. Given a force acted on by certain other forces, and the result is as good as mathematically sure. Men, like trees, grow according to their nature and their circumstances. Burns, placed in exactly the same circumstances in which he lived, would be exactly the Burns that he was. We like or dislike the original nature; we pity or envy the fortune it has met with; and we admire and love the man, or dislike and shun him, just as we stop to look on the rose, or trample carelessly on the dandelion. Freewill is only force, and all force is determined, first, autonomically, that is, by its own law or nature, and again by the action of other forces. So-called philosophers hold interminable controversy on the mysterious antagonism of freewill and necessity, because they are unaware, or forget, when they should not, that all language is imagery, and all thought is a broken reflex *in petto*. Necessity is a word by which we express the relation of Force, as unity, to individual forces; by Freewill we express the relation of any individual force to force as unity. But we know very little of these relationships, and of force as unity and in division; we only imperfectly express what we do know on the subject; and to get up a serious controversy on the contradictions of phraseology is not the way to increase our knowledge. The peculiarity of the phrases Freewill and Necessity is, that while logically, as correlatives, the one implies the other, yet if we affirm freewill we leave no room for the possibility of necessity, and if we affirm the latter we deny the former, but then without necessity Will ceases to be (having no results), and without will necessity becomes a void. Such phrases are only desperate

attempts at expressing what cannot be expressed; and those who found moral doctrines upon them only betray their ignorance. "*On a grande raison,*" wrote Leibnitz, "*de se récrier sur la manière étrange des hommes, qui se tourmentent en agitant des questions mal-concues.*"

Therefore, regarded under the simple law of force, we may expect to find some peculiarity, whether of nature or environment, common to all unfortunate men of genius, to which the tragic character of their fate may be ascribed; and that, I think, may be found in the nature of genius itself, on which subject etymology affords, as it always does in such cases, some useful hints. "Genius," in its common signification, as in its Latin, Greek, and Sanscrit derivations, denotes generically the power of creation—the generative faculty—but specially that power intellectually operative. It does not imply any extraordinary amount of the vitality, or force whereby men live, co-ordinate, and produce, but signifies that force acting in a special way and on peculiar objects. I cannot better express briefly my notion of the nature of genius than by saying that it is force forming or reforming the reflex of existence. Not isolated and purely autonomic, but acted upon by myriad forces, and related to these by the laws both of attraction and repulsion—of love and hatred, Man cannot live without compensating himself for his limitations arising from forces around, by identifying himself with the life and interests by which he is limited. Hence the craving after knowledge, theory, and the necessity for the consciousness of a greater life than his own. Even for his practical behoof, he must have some trust in the unity of life, some chart of the way on which he is led, some sky which shall protect him from the blackness of darkness, some faith in which he can rest, accepting the sorrows and contradictions of the hour,—persevering to the end. The wider the view, the more perfect appears the harmony. The pain of the hour becomes tolerable when understood in its relation to the life of the individual; the loss of individuals is the gain of the nation; the loss of the nation is the gain of the race. But, as implied, there is a deeper influence at work. Man is sympathetically united to the Whole; there is a sense of, and longing after, the Divine. David Scott, our great Scottish

painter, asked passionately, bending over a flower, why he could not enter into its life. Byron desired that womankind had only one mouth which he might kiss. Nero displayed the same sympathy, but sympathy repulsed, when he wished that men had only one neck to be divided at a blow. The apprehension of this relationship to the Whole, has, in some ages of the world, been regarded as a divine power. In barbarous times, he who specially manifests it is "inspired"—a God speaking through him; in more critical but reverential ages, it is still the *mens divinior;* in sceptical times, it is the *poco più*—the something exceptional and extraordinary. Creeds, Philosophy, Music, Sculpture, Painting, Poetry, Law—all these belong to Art in its peculiar signification; that is to say, to the reconstruction of existence on an ideal basis. Thus, law is a reflected objective rule, intended to indicate and effect the best possible compromise between conflicting forces; even religion implies a binding-up, a means by which harmony may be produced or restored. The antithesis of Art is Nature, ordinary language recognizing the broad distinction between life in direct and life in reflective or restorative action. Homer well understood the true nature of Art when he made Phœbus Apollo, after tasting the immortal food, and bursting the golden swaddling clothes, exclaim:—"May a lyre and bending bow be mine, for I will declare to men the unerring counsel of Jove." The Artist is he who can know and declare the unerring counsel; he is the interpreter between Man and Nature,—between Man and God.

Goethe has said that Man was the first speech Nature held with God, but evidently we get on very uncertain ground when applying the principle. It may be that the poets are right in ascribing conscious life to what we call inanimate objects; the flowers may rejoice in the odours they breathe forth; the volcano may rage with conscious fury; and the spirit of the earth may know her wanderings among sister moons and stars. But since conscious thought or a reflex implies existence, while existence, except in so far as it exists in thought, necessarily implies nothing whatever, it might almost be allowable to regard speech, thought, and consciousness, as belonging entirely to the restorative action of life. Without hazarding so much, or venturing into that portion of

Metaphysic which relates to spirit and matter, it must at least be conceded that, in our limited experience, the reflex of our life usually follows after failure. The very cockle, so long as it is in its proper situation, and living as a cockle ought to live, resolutely refuses to sing,—and opens its lips, not to emit sweet sounds, but only to admit unfortunate young eolids. Perfected naturally-unrolled existence requires no reflex, no vindication in speech or song. Am I perfect, unhindered?—then I will not sing, but live; not contemplate myself, but go forth on my objects. It is not the most beautiful women, but those secretly doubtful of their beauty, who look most in the mirror, and when these former do so, it is not to enjoy their beauty for its own pure sake, but to vindicate their defects—to persuade themselves that that beautiful fleshly veil will conceal many deformities—that, robed in it, their spirit may enter into the inner chamber of the loved one's soul. It is complained that the English have no history, and little power of original expression; but that is because, compared with other nations, they have had little need of anything of the kind. So, from the same cause, the true works of Art, or the representations indicative of greater motions of life than the Artist and his fellows can command, indicate also in each age that age's defects, and set forth that which is required to remedy these. Music, the simplest form of expression, and one which even African savages can comprehend, is valuable only in so far as it represents, and enables the hearer to realize, the tendencies of the life flowing round him. Troubled Saul desired a cunning harper that in his darkness he might feel the sunny flow of light and life; and it came to pass that, as the harper played, "the evil spirit departed." Quite as useful is music in chasing away the spirit of frivolity by the pathos and earnestness it can represent and arouse.

There are times when theories of supernatural action, or of overruling Providence, spring up, and these belong emphatically to the worst periods of the world's history, when much is in a state of disorganization, of wild seething chaos; when, consequently, such theories are specially required for the consolation and preservation of all better souls, and to restore society to healthy action. The origin of many of the great systems of religion lies in obscurity,

but we may guess how modern Hinduism sprung from the ruin of Buddhism; recognize the secret of Mohammedanism in its organizing power; and perceive clearly that the time in which Christianity arose was dark indeed, when the decaying Roman empire and Pagan faith were brought into contact with still more degraded oriental systems, while Greek subtlety and fraud, Latin stolidity, African fetishism, with hot African sensualism, and northern ferocity, threatened the future of the world, unless awed by some striking revelation of the higher tendency of things, and subdued by a power capable of permeating society with new life. Again, there was a period of the Middle Ages when men thought in stone. Turning with dissatisfaction from the Latin hymns of Abælard, the rude grotesque miracle-plays, and the chiefly barren disputes of the schoolmen, to the cathedrals of Florence, Pisa, and Lucca, of Nuremberg and other towns in Central Germany and Flanders, the abbeys of England and Scotland, the Gothic castles, and even many rude robber strongholds, it is not difficult to see that the highest thought and feeling of the time found in those marvellous piles—those springing arches, calm falls of light, depths of shade, and doors whose beauty well deserved to last for aye—the most fitting representatives and vindications of the higher effort of Man,—of Man making the earth more beautiful as it rolls among the stars, working according to the will of the Eternal Father who looked down from above, consecrated to the work, in the solemn place, while yet a child;—and even the memory of the proudest and most victorious perpetuated only by a recumbent statue with humbly clasped hands in acknowledgment of shortcoming, but undying aspiration.

Each time has new wants, and the tendency has been toward more articulate forms of expression. The power of thinking in stone was lost, as thought found easier and distincter modes, and only imitations of what *had been* thought in that way were produced. Even St. Peter's, Michael Angelo's gigantic attempt, lacks the vital relationship to anything high, and represents only the vulgar splendour of later Catholicism. Architecture usually suggests, and is displaced by, sculpture and painting. There, as elsewhere, there are embodiments and imitations. We approach some

paintings of known character with a certain awe, which is increased rather than destroyed, where there is anything of the vision divine, by familiarity with them. Among these are Da Vinci's Last Supper, some of the old Madonnas, the Praying Monk of Fiesole's little pieces, Guido's Angels and Women, and everything—from the questionable Madonna, "a mither yet nae wife," up to the white victor face in the Dispute of the Sacrament, and Christ Transfigured above the misery, agony, and doubt of mortal life—which came from him, the truest of artists and greatest of painters, who, for so few years, was allowed to show his young face on the streets of Rome or beside his Fornarina, and who was called so soon to sleep in the solemn silence of the Roman Pantheon, that relic of a darker sterner time. Others again, though most carefully executed, contain less meaning than a sign-board does. No sooner has genius been successful in placing itself in relation to any sphere of life than a thousand imitators start up, appearing to do it over again; but while they are at work, Art has passed into other regions and methods. Now it is in architecture, now in painting, now in romance of chivalry, now in war ballads, now in dramas, now in sermons and Long Parliament speeches, now satiric novels, now sceptical science, now metaphysical poetry, now theories of human perfectibility, now in lyrics, and now in history, that consciousness of the harmonious plan finds fit expression.

Some critics can recognise Art only in its varieties, and suppose that there is a vital distinction, if not even opposition, between such things as poetry and philosophy. The true state of the case has been so fully laid down by Shelley, in his magnificent *Defence of Poetry*, that it is unnecessary to show how superficial are the distinctions. Only I will remark, that the critics, in their treatment of Shelley and others in regard to this and cognate, but still more serious matters, remind me of nothing so much as of the base crowd of satyrs who hooted the worthy and acknowledged lover of heavenly Una because he neglected to join them in worshipping her ass. There is true Art and there is false; there is the soul of man representing, from fatal necessity, the meaning of the Whole, and the soul of man attempting to imitate these representations, without any consciousness of the Whole, without any innate

necessity, puffed up by vanity, or in the hope of obtaining the recognition (still more its occasionally consequent material gratifications) which, sooner or later, is bestowed on the true artist. Blind Homer, thinking of the blue eyes of goddesses, the limbs of the Greeks, the deep breasts of the maidens, the strength of Achilles, the wisdom of Ulysses, the vessels of silver, the purple robes,—of all that he had seen or heard of, from the white splendour of Olympus down to the white tusks of the very swine,—felt that these things were intrinsically good, and saw that, even in the wild tumult of passion, the will of Jove was accomplishing; but shall Wilkie (not to take a more imposing instance) make his Epigoniad a *poem*, by sitting down to imitate Homer, instead of sympathising with the life he knows, and expressing that sympathy as the day demands? In virtue of that truth and love which dwelt in his own soul, believing in eternal justice, and seeing that that mad Italian world trembled in the light of time, between heaven calm above and hell lurid beneath, Dante could hold the history of his age against the great sun of truth; that is to say, he could contrast the life of Italy with wider tendencies of life, and discerning, partially, eternal justice under all the wild strivings of humanity, instead of acquiescing in his temporary defeat, his whole soul rose in protest, even amid evil souls, to the height of the great argument, and poured forth, in unequalled song, its vindication of the ways of God to man. Hence he was a poet; during the long centuries of Italian degradation and misery, his burning heart has been as a watch-fire and promise to the true and faithful of his country; and so powerful to wanderers from the North, that Milton learned from him to bear the pettiness of evil tongues and evil days, while even Byron turned, after riding under the pine-trees of Ravenna, to strike his lyre to loftier strains than it had ever known before. But when men of the best minds in Europe are saying, in their bitterness,

> Gestorben ist der Herr Gott oben,
> Und unten ist der Teufel todt,

shall Pollok or Montgomery enable us to see beyond the evils of the day, by clashing together words which have only historical meaning?

The sacred furor of genius is incessantly imitated, just as insanity is counterfeited in the East because of the veneration which it there commands; and hence we must consider at present, only original genius, and without expressing any opinion as to how far imitations of it may be required. Doubtless the eastern veneration for insanity arose in part from the resemblance of insanity to the highest mood of mind —both states appearing to come from some power external to the subject. So well do the Arabs understand the approximation between madness and genius, that they distinctly recognise a certain profound melancholy, incapability of action, and shunning of men, as attendant among them on high mental development, and always treat a SAUDAWI, or man so afflicted, with kindness and consideration. But the creative faculty of the mind not only produces abnormal mental states; it can scarcely be exercised without the existence of such.

In the first place, and most obviously, it both implies and produces peculiar isolation of spirit. Men are gregarious even as to their ways of thinking. The tendency is not only to live like those around us, but to think with them also, within the same limits, on the same objects, and to the same ends. Comfort and repose are lost when the mind becomes a stranger among strangers; sympathies are no longer swiftly exchanged; suspicion of the dissenting mind is generated; and the very loss goads on that mind either to proud bitter contempt, or to apprehend higher sympathies, which include those denied to it directly. Even the pioneer of civilization is generally driven into the forests by some wild craving he has failed to satisfy, some deep sorrow, or some crime he has committed; it is because he is *alone* that he seeks the solitude of the wilderness; as his leather leggins harden on him, as his eye and ear become quicker, and the hunter-fever quickens, he becomes more unfit for ordinary life, and would rather see an Indian's scalp-lock than the smoke of a settler's fire. Still more emphatically does the like hold true in the realms of intellect and imagination. There the tendency is to rest on what has already been gained, and to enjoy that. In very few men, and only in those of poor nature, is this tendency counterbalanced by the weak love of fame simply. Guerazzi, the Florentine novelist and statesman, said, in one of his

prefaces, that he had written a book because he could not fight a battle. "Most of Goethe's writings," said his friend, Chancellor von Müller, "arose from the absolute necessity of freeing himself from some inward discord or distressing impression." "Most wretched men," said Shelley,

Are cradled into poetry by wrong.

All the poets may, with a little explanation, be shown to illustrate this. Even the best effort of Sir Walter Scott sprung from his craving after a ruder manlier life than that which he enjoyed; Byron's Giaours and Don Juans arose from the unslaked desire of a not very ethereal soul. It is not to be denied that this isolation has its compensating pleasures; but, apart from these, its tendency is to perpetuate and increase itself; and, in spite of these, its effect on many men must be to hurry them towards madness and ruin. Madness, perhaps, this solitude will not produce in any man of unselfish nature, but it may well make him a *Saudawi*.

Alone! that worn-out word,
So idly spoken, and so coldly heard;
Yet all that poets sing, or grief hath known,
Of hope laid waste, knells in that word—alone!

Secondly, the exercise of the creative faculty implies a felt want, which this action is intended to supply. The man of genius must be an example of the failure of the Old, and apprehend the possibility of the New; consequently, though he may conquer, he must be, as Byron said, "full of scars." The most exhaustive and painful of the mental functions is not roused to activity except when urgently required. An honest, modest soul, from which alone good can come, is slow to quarrel with its creeds, feelings, morals, and customs. So long as a scientific theory even fits our facts, only fools discard it; but a fact which will not fit in troubles men who know that a soul unfaithful to itself is dying, and they change or extend their theory. Life would become too difficult and serious a matter were it not for the guidance and faith under which we move. Even common tailors would have their lives worried out of them, if every time they made a coat they had to devise how to shape and stitch it. A daily editor must have a certain knack of saying anything or nothing, in order

to keep his mind from being for ever on the stretch. To decide the right and wrong of the practical problems which in rapid succession come before us, we must have moral axioms and generalizations on which to rely. Men's feelings are certain determined inclinations, which they never think of repressing or outrooting, until landed by them in painful difficulties. A little experience teaches the child that his feelings must be restrained; and the general rule is drawn, from suffering in itself and others. Mr. Emerson, excusing the English for their dulness in theory, observes that a horse works best with blinders. The blinders of men are, in fact, methods of working. To devise a mode of working even in tailoring is a very serious matter. The process is incessantly going on. Old modes become useless; new ones are invented. Of course some men fall into the mistake of regarding their own peculiar need as the need of humanity; but a man of true genius is guided by his apprehension of the widest and highest tendencies. Consequently, though his demands may outrun immediate, they never contradict absolute, possibility. A true man is always "representative." It was expedient for Moses to leave Egypt, but it was also good for his race to do so. "What is good is effective," says the American thinker. Goethe said the same thing—"*Was fruchtbar ist allein ist wahr.*" That is ideally true which is generative. The idea of Columbus binds the two hemispheres with a white chain of ships; other thoughts are transformed into electric wire; the words of the apostles become stately churches, tilled fields, laws, and institutions. Material things become immaterial; immaterial, material. Death is the condition of birth; birth, of death; and both are gates of danger and pain. When the originator is not personally involved in the failure and destruction of the Old, he must, in order to appreciate that failure, have a depth of sympathy and excess of imagination unfitting him entirely for this rude earth. There may be such; I can only say, like Shakspeare's clown, that I have never drank with them. When the creation relates to social or national organization, morals, feelings, and faith, then, most usually at least, the inventor has personally, and to his grief, found the Old wanting. Would Mirabeau and the last of the Gracchi have thrown dust towards heaven, and called

on the avenging deities, could they have settled, as regarded themselves, that question between patrician and plebeian? Socrates, nearly the most admirable of moralists, had been sensual and bore to his grave the head of Silenus, being emphatically, like all true moralists, a "conqueror of high renown, but full of scars." The poet, or the creator in the region of feeling, gives voice to new or unrecognised sympathies which he feels to be necessary to redeem life from the charge of falseness or baseness. The highest faith can only be originated by a soul which has been compelled to wander out from under its traditional sky, and has, with awe and trembling, found itself under the great darkness. And what does all such experience involve? It may seem a very light matter to those who work cheerfully on in their blinders, and cannot fancy what distraction their poor little souls should be in without blinders; but even they, if not too conceited, may see from a distance and dimly. They may partially understand how the man of genius must suffer when he participates in the mistake, confusion, and misery, which fall upon men when their social arrangements are unsuited to their activities, when their moralities fail to indicate the highest ideal, and only cramp the necessities of practical life, when their recognised sympathies differ from their real, and when their theory of the Highest has become wretched blasphemy. Participating in such injury, is it to be wondered at if he should never escape from its effects—if the moralist should continue to be somewhat immoral, and the poet to be somewhat extravagant and false? Again, while thus suffering, he has to go out alone and frame his new world; he has to face that black void which no man can look at without danger. A Maratha proverb runs, "When the sky is rent, who shall stitch it?" Without the sky, to speak metaphorically, of right, feeling, and faith, Man cannot live; and when that is rent, who shall stitch it? And yet the man of genius must do so if he is not to end in mere delirium or insensibility. To speak more plainly, he must form his world-theory anew; having found his morality mischievous, he must determine what is good for Man; having found his faith foolish, he must find wisdom. Little chance, then, can he have of extricating himself from his errors. Not unfre-

quently he perishes in the attempt, and dies so, that others may not so die. At best, he is like Moses, who never himself reached the Promised Land—only seeing it afar from the mountain peak ere he lay down to die, and who escaped from the bondage of Egypt only to be with his murmuring unthankful people in the great and terrible wilderness.

These and similar considerations point towards the conclusion that men of genius appear in the world in order painfully to give their lives for the world's great gain, and that it is very difficult to distinguish between the misfortune which is unnecessary waste, and that which is necessary to their highest effort. This conclusion has no charm of novelty about it, for it is as old as human thought, and even savages express it in their own rude frank way. Foe, the distinguished Buddhist who, near Kala on the Indus, gave his body to preserve a famishing tiger, only acted on the doctrine that men of genius must give themselves to preserve the perishing Time-Spirit. When the Arab merchant, Shayk Mohammed of Tunis, went among the Forians of Central Africa, these intelligent clouded-black critics, observing his Semitic reddish-brown complexion, and considering the subject in the light of such moral and physical truth as abounds amongst them, came to the conclusion that he was not a ripe man; that he had been born into the world before his time; that men so born are good to eat—and that their Sultan had sent this one to be devoured. A very rude way that was, but at least unaffected, of stating the doctrine; and I must say that in all the lately published philosophical treatises, I have found no such proof of penetrating genius as is afforded by the above judgment, which proves, moreover, if the work of a poet be to *speak* what other men do, that these negroes were poets as well as philosophers. But in order to see the profundity of the remark, we must remember that the phrase "made to be eaten" can be very variously translated. With the majority of the Forians eating meant eating — slicing, broiling, masticating; but one man among them seems to have had more enlarged views, for he proposed that they should wound the Arab in order to see how long it might take to empty his veins. He apprehended that an unripe man was sent by the Sultan in order that the ripe men

might make food of him, not for their stomachs only, but also for their souls; that instruction, as well as pleasure, might lawfully be got out of men born into the world before their time. In this way the Forian doctrine may be made to suit a great number of cases, for, in the great human tribe, the man born before his time is devoured in very various ways. In rude states of society they eat him literally, and with relish, but as men advance, they get a distaste for this article of diet, and take their gratification out of him in other ways. In less rude states they sacrifice him to their gods, believing that though they themselves cannot, these will relish the delicate unripe morsel. In still more advanced states they sacrifice him, not to the Powers of Nature, but to the Moral Power. They regard him as impious. They immolate him for the benefit of morality—pounding him in mortars, giving him hemlock to drink, sawing him asunder, crucifying him, burning him, throwing him to wild beasts—thus obtaining, besides the satisfaction of the moral principle, spectacles of great interest, and greatly gratifying to certain human sensibilities. Civilization teaches the introduction of the more cruel element of mercy; the most interesting of all sights being to see the man "die of himself." When my excellent old friend, Duke Abbas, late Prince of the Johanna Isle, had been taught a little English and civilization by the sailors of the ships touching (as they did more frequently some years ago than now) at his domain, he would allow of no executions. Over a gaunt huge negro tied to a tree in the last stage of starvation, with tongue hanging down, and eyes swollen out of their sockets, it was once remarked to a philosophical observer by a brother of the Prince:—"My broder, he a most merciful man; he no take away life. No! when one bad man is, he tie him up dis way, and no gid him nothink to eat, and nothink to drink, till he die all of himself." This is a great advance on the ruder methods of treating the unripe man, for the process is simple, consisting in ignoring his existence, except to watch with interest his mad attempts to connect himself with the life that is around him, and his unavailing struggles for something to eat and something to drink. But we cannot keep the world from rolling. Even my merciful friend, Duke

Abbas, being either unripe himself or too mellow, was dethroned by his own prime minister, and is now, in his old age, dragging out an obscure existence by selling sweetmeats and cotton cloth in ports of the Arabian Gulf. Death by starvation has long been regarded as rude and unsatisfactory by men of fastidious minds; it is too speedy. Then, sometimes, the poor unripe one will not stand it, but leaps over the ring and dies in solitude, defrauding all the spectators of their legitimate rights, and allowing them only the consolation of abusing him, of tearing up his moral character, and of damning him to all eternity. It is clearly understood now that the unripe man should not be starved, should be kept in life, and entangled in all sorts of coils. What are the sufferings of death compared to the sufferings which have been got in this way? Like Count Cenci we grow in knowledge, and take care to preserve the body that we may enjoy the anguish of the soul as revealed in songs and groans, in

> The dry fixed eye-ball, the pale quivering lip,
> Which tell us that the spirit weeps within
> Tears bitterer than the bloody sweat of Christ.

England being a dull country—a *Ghuddistan* or Cuddyland,[1] as they say in the East—keeps up old fashions, and not till shocked by the death of Chatterton could she be induced to give up the simplicity of the rude starvation plan; but the South displayed early a finer apprehension of the destiny of genius. The Cumæans wanted to starve Homer, but he was too ripe for that, and, as he informs us, his mighty spirit urged him, though his limbs were weak, to go to another people. Another proof of his having been exposed to Greek Forians, may be found in that pathetic speech to Ulysses which he puts into the mouth of Themius the bard:—"I am able to sing to thee, as to a god; therefore do not be desirous to cut off my head." Yet was Homer brought in contact with a more civilized state of matters, and was devoured by

[1] Let me take refuge here in the authority of Shakspeare:—

> —— "Proud Italy,
> Whose manners still our tardy apish nation
> Limps after in base imitation."

"But it was always yet the trick of our English nation, if they have a good thing, to make it too common."

the Time-Spirit in a prolonged scientific way, exclaiming, all the while—"To what a fate did father Jove (the Sultan) give me as sport, when he nurtured me, an infant, on the knees of my venerated mother." Italy, in Rienzi, Tasso, Michael Angelo, showed varying skill in crushing men of genius for the sake of the perfume, but Dante was its masterpiece of ruin. In the sweet melancholy and almost womanly affection of his youthful portrait on the wall of the Palazzo del Podestà, we may see what a fine element she had to work upon, while in the broken old countenance of the Duomo, we may see how well it was worked upon—how thoroughly the dry winds of poverty and wrong wrecked him on the shores of condemnation and wrath. Dante, too, belonged to the *Infanti Perduti;* because, in his "Inferno," instead of there being, as Mr. Carlyle seems to think, a just balance between the "infinite pity" and the "infinite rigour of law," while the pity is true and divine—the throbbing in his heart of the great heart of the universe—the vigour is too often human, untrue, local—the fierce misapprehension of a calm necessity.

> Se fosse amico, il Re dell' Universo,
> Noi pregheremmo lui per la tua pace:

"If the King of the Universe were our friend, we should pray to him for thy peace." What is there in all poetry more touching than these words of poor Francesca? Yet the idea which makes them so is atheistic rather than otherwise, and it is recklessly applied by Dante when he can so condemn her of Ravenna, and yet admit the sensual Cunizza into paradise. On reading this and many more of even a Dante's judgments, I think of Plutarch's inquiry as to whether he should like men to say there was no such man as Plutarch, or that there was one Plutarch who devoured his own children; I remember how great is the consolation that judgment is not of men; and I recognise in Dante, as in Swift, and many more, a ruin not the less real, because less inconvenient to that small morality, which, according to the French proverb, *est toujours l'ennemie de la grande*, than that of such men as Alexander and Mirabeau, and a ruin that makes his writing sometimes read like the story of a ruined god who had been cast down from heaven, and had taken, in his bitter

hunger, to devouring women. Let me not forget, however, in an Edinburgh Essay, the credit which is due to Scotland for her appreciation of the destiny of genius. In that respect, as in all others, she has been the foremost land of all the world, the land of the Scots, the mother of the men who, according to the Scandinavian meaning of the name, move promptly, swiftly, and terribly.[1] A superficial observer might think her treatment of her children of genius rather severe, but the severity arises from her intense reverence, she judging them ready for heaven and the Scottish Valhalla. Since she found, in the case of Wallace, the advantage of the practice, she has always been ready to give her nobler children to the famishing Time-Spirit. The men who kept her Border were chucked over in dozens. The Border Minstrels were swallowed, even to their boots, so that their very name and individuality disappeared. Only dimly and with much straining can we, perhaps, discern a few of them:—Clerk Saunders, after the seven bluidy brothers had thrust the "bright brown brand" right through his "fair bodye," and as he lay in sleeping May Margaret's arms,

> Yet sad and silent was the night
> That was atween thir twae;

the clerk's two sons of Owsenford, when, for "a little o' dear boucht love," they were hanged high at morn; young Barthram, in the misty morning, when

> They shot him dead at the Nine-stane Rig,
> Beside the headless cross,
> And they left him lying in his blood
> Upon the moor and moss;

and Johnnie Armstrong, wildest of them all, when, on his "departing night," both friends and foes wishing him away, he covered his bleeding heart with one hand, and with the other waved them all good night and joy. Most graciously Scotland sacrificed her poets. Fergusson "of deathless name," disappeared like a glass of whisky, with one gurgle—his maniac's shriek; Michael Bruce, even as he sat looking on

[1] See under *Skutin* and *Süsla*, in Dr. Udo Waldemar Dieterich's *Runen-Wörterbuch*, published by Fritze at Stockholm and Leipsic.

the smiling Frith of Forth, spoke of "this foreign land, this gloomy apartment of the universe of God;" and in Burns, she put even Italy to shame. Florence made Dante lacerate himself, but Scotland made Burns actually devour himself. "Behold," said the undaunted Scottish Forians, "an unripe man whom the Sultan has sent to us that we may see him offer up himself! By Allah! O Man! art thou not ashamed to delay? it is for thy sins this punishment is laid upon thee. We shall aid thee." And they aided him accordingly, thus:— Having allowed the boy to force his way unaided to giant unripe manhood, and so induced the poetic melancholy which follows long protracted sore struggles with obstructions to the unrolling of life and development of character in the season of youth—the joy-time, they laid hold of him, just as he was about to seek another shore, and changed him, as he himself remarked, from "a sixpenny private and a miserable soldier," into "a starving cadet, a little more conspicuously wretched." We all know what Burns was then; a nobler victim had not been seen in Scotland since Wallace, betrayed and bound, had been borne across the Border. But men must have so much enjoyment, and when no suitable life or labour affords it, it is purchased at a sacrifice. When the destiny of the soul (which destiny lies in its own nature) cannot be harmonized with its earthly destiny, then the soul becomes furious and willing to end the matter, as well (why not better?) in dissipation and madness as in slow misery and dying by inches. The hunger for living must be satisfied: one man eats his honesty; another, his manly independence. Coleridge eat up his poetic soul, finding it sweet in the mouth, but bitter in the memory; Southey and Wordsworth sacrificed such intellects as they had; an unripe man is sent into the world to be devoured, or to devour himself, and Burns sacrificed the lower parts of his nature, keeping his heart pure and his soul unspotted from the world; he was of a nobler breed than they: still nobler, perhaps, are those who, like Chatterton, "compress the god within them, and rejoin the stars." Moreover, the poet must know men, sharing their joys and griefs, wisdom and folly; so Burns, alongside of some Tam o'Shanter or *fille perdue*, may have been more in the way of fulfilling his vocation than when driving cattle. Nor was he without

aid. A wife and children will eat up a good deal of a man's substance. Every farmer in his neighbourhood, and every passing traveller had a share of his society, his toddy, and his jokes. Even his servants eat his bread before it was baked, and drunk his ale before it was brewed; for Robert Burns was not the man to frown at time lost among the "rigs o' barley," or to make his farm profitable by pinching his labourers. So the thing went on, affording him no opportunity, such as his nature required, for extricating himself from his entanglements and rising to self-sufficing wisdom and ripe manhood; until that unhappy giant, feeling his life miserably passing away, turned round, in fierce wrath on a blind careless fate, on all his tormentors, and like an Indian chief proudly defiant in his death agonies, shouted the songs of his tribe, taunted his hereditary foes, and in such haunts as village ale-houses, tore his own flesh, and maddened his brain, till on that dark winter morning he sunk down upon the snow; and after his lingering death, embittered by the want of five pounds, after the savage fury and the feeling soul had both gone for ever, ten thousand Scotsmen wept at his burial, and the "awkward squad" fired over him, as it continues to do to this day. Happier, indeed, had it been for Burns, had he not been thrown into these stony Scottish hills; but it was there he was needed; there to reveal once more where the true beauty of life lay—how the daisy on the furrow and the honest man on the moorside were fulfilling great Nature's plan.

Though such views of the destiny of men of genius make it difficult to distinguish between useful and useless misfortune, yet, at the same time, they suggest considerations of practical value both to these men and to the world in general. The lesson which may be drawn from the ruin of their fellows, by men possessing the greatest of all earthly possessions, has been often inculcated by solemn and somewhat ignorant moralists, and inculcated with so little discrimination that it has almost been turned into this:—"You had better take care of yourselves; for, if you do not, be sure nobody will do it for you." To such advice, however smoothed down in the delivery, those for whom it was specially intended have generally turned a deaf ear; and it is to be regretted that they have often dis-

regarded the truth of which the advisers have, when they advise, a rude apprehension. Some men have grown up with such rich impulsive natures, under such miserably false guidance, that the effect of that guidance, and of their after conflict with it, has proved utterly destructive; but in other cases we see the action of an element which can only in special circumstances be considered as necessary to genius. Drawing too largely on the capability of pleasure is not unfrequently, when resulting from circumstances external to the individual, a mean by which he is convinced of the mistake—general, not merely individual mistake, in which he has dwelt, and is the mean by which he is roused to learn and correct the error. Hence over-indulgence may actually promote the growth of genius; but

> Boundless intemperance
> In nature is a tyranny; it hath been
> The untimely emptying of the happy throne,
> And fall of many kings.

Woe to him, and specially if he have in any measure the gift of genius, whose love of pleasure is so insatiable that, instead of convincing him of his errors and regulating his life, it hurries him on to sacrifice everything for its gratification; all the fuel being exhausted, he at last sets his vessel on fire, in order that he may reach land. That even such are fulfilling the will of Jove, and that their loss is nature's gain, is also true; but no pity or honour from men shall they receive, for "verily they have had their reward." It is impossible to point out any general criterion by means of which men may determine whether their confusion or apparent ruin is the necessary condition of nobler higher life, or the forerunner of physical and spiritual death, but it is at least certain that there is no rest for the Children of Time, that they are all either retrograding or advancing—advancing in what conceited ignorance may regard as ruin—retrograding often in what, to the gross worldly eye, may appear glorious success. If retrograding, and with life enough left to enable them to know they are so, let them remember that they alone can discover for themselves where their salvation lies; and when advancing, through confusions manifold, let them not be misled by general rules and moralities, but boldly dare to

lay aside all rule until they get footing on some fact, to them indubitable, from whence they may safely advance upwards. Even the rude advice, to take care of themselves, might be most useful to men of genius were they to consider it as addressed to them as a class. In eastern towns, dogs organize themselves in bands, and each band falls on any stranger dog intruding himself into its territory. Classes of men act, with a superficial difference, very much in the same way. Men of genius stand, from their excess of sympathy, at a peculiar disadvantage in their conflict with the world, yet it is specially of importance to them that they should be able freely to order their relations, for playing adverse forces against each other may save years of miserable creeping; therefore, they also might support each other better than they have done. Occasionally, in the case of an individual, the world is convinced that the effort of his genius is to him a serious and sacred thing, but it has yet to believe that the effort of the intellect of entire humanity is to be regarded as so serious and sacred that any untrue use of it for individual ends is a crime committed against the human race, and never can the world so believe until men of that diviner mind, which alone can perceive and shadow forth the relations of Man to the universe in which he dwells, shall be seen, not merely as individuals, or for a lifetime, but in compact group and through weary centuries, standing apart, recognizing each other as the only interpreters between Destiny and Man, and coldly refusing to acknowledge as poets, painters, statesmen, divines, or as in any sense Artists, the successful showmen who make a business of deluding the vulgar imagination by new and clever arrangements of "things seen," but arrangements expressing nothing "unseen and spiritual."

Perhaps, also, in these days when freshwater polypes and sea anemones are accurately observed and elaborately reported on, some little attention might be profitably given to the real nature of *Infanti perduti*, and as much trouble be expended on them as is devoted to the conservation of poodle dogs and rare kinds of plants. For though often, like Jonah, they may be unwilling to deliver their unwelcome message until the indignant crew cast them overboard, not always is there a friendly monster to bear them safe to land, and many

perish miserably whom a little friendly help might easily have saved. When Shakya Buddha walked over Indian plains, hidden treasures, according to the Thibetan books, raised their heads and exclaimed:—"O Mighty One! come and take us"—the most affecting instance of hero-worship upon record! From Buddha and his friends to Chatterton, compelled even to buy his pennyworth of arsenic, what a range! I think the hidden treasures knew their own interest better than did the English of the eighteenth century, and doubt the rule which holds success in struggle with the world to be necessary to prove a man's greatness, as if the proof lay in greedily taking rather than in nobly giving. The treasures in Buddha's time were wise, and knew to whom they ought to yield; in our day the treasures also give themselves up, but unwisely, to bearers of divining rods which have long ceased to divine. In other words, men know their need of spiritual teaching of the various degrees, and readily sacrifice much to obtain it; but much of men's effort is mistake, and they never almost get any return for their outlay; the little real teaching they get comes gratis, and perhaps might be increased by outlay in the right direction.

So much has been said in this paper of genius as restorative, and as implying new and painful mental states, that I cannot conclude without dissenting from the opinion that life in spontaneous unconscious evolution, is, relatively to us, or to life's progress (for, in an absolute sense, there is neither great nor little, except interchangeably—

Klein das Grosse, gross das Kleine),

greater than its reflex. As the flower on the mountain-side, and the crystal in the vein of the rock, may be more lovely and more perfect to us than the mountain itself, so individual souls may be, as it were, the flowers and highest perfection of the great existence of which they are a part, while these souls again have their flower and highest perfection in the ideal life which they project beyond the confines of the real. The highest life known to us exists not in the ages of our past, not in the distant stars, which look so blue and beautiful, while probably they are full of wildly conflicting forces, but in our own imaginings and longing dreams, which can

harmonize all antagonisms, and shadow forth a perfect world. It is even this draping glorifying power of imaginative thought which renders possible our conscious recognition of things existent. Omnipotent Phantasy, that divinest goddess, is the true *mater gloriosa* and Queen of Heaven, the mistress of souls and benefactress of mankind, ever gathering our knowledge and our ignorance into shapes of beauty, weaving the rainbow across our path, and veiling the dark deep with lucent azure. From the cradle to the grave, what were the children of men but for her? Before the child's gaze, where the speculation is but small, she forms this our world as before the clear earnest eyes of the bravest man; and when the strong thought is about to slumber for ever in the wearied brain, the heart of feeling beats faintly, and the dim eye is closing, she is *there*, painting the blessed fields, on the awful darkness, with the very mists of death. In her gift is an ordered world. How often, in her highest exercise, has she formed it anew for the races of men!—now giving, as centre, some misty Olympus, among the peaks of which are gods; now some unfathomable source of creative power, itself unmoved; now some omnipotent ruler—"Jehovah, Jove, or Lord." Slight her not, poor Thinker!—and worship at her nod, for without her, there is only the blackness of darkness for ever—the melancholy waste of waters on which no Columbus has found the New Land. Painful and dangerous is her service, *spes et præmia in ambiguo—certa, funera et luctus;* but even to him who is destroyed by it there is compensation; for, in the very perception of genius—in its love penetrating to all stars, its sight, which vindicates existence and hails the golden age—there is a pure joy, an exceeding sense of glory, which can raise and transfigure it above the sufferings of earth, enabling it to sing, with Apollo—

> I am the eye with which the universe
> Beholds itself, and knows itself divine;
> All harmony of instrument or verse—
> All prophecy, all medicine, are mine,
> All light of art or nature;—to my song
> Victory and praise in their own right belong.

A. W.

PROGRESS OF BRITAIN IN THE MECHANICAL ARTS.

"The greatness of the British nation is not owing to war and conquests, to enlarging its dominions by the sword, or subjecting the people of other countries to our power; but it is all owing to TRADE, to the increase of our commerce at home, and the extending it abroad."—DEFOE.

IT is a favourite assertion with some writers that, if the position of a country, its climate, soil, and physical features be given, the history of the people who shall inhabit it may be inferred beforehand, almost as certainly as the propositions of Euclid are inferred from his definitions.[1] Britain cannot help being a great country, because the physical conditions on which national greatness depends are developed in her to an extent unknown elsewhere. If the globe be divided into two hemispheres, of which the one shall contain nearly all the land on the surface of the earth, and the other scarcely anything but water, it will be found that the metropolis of Britain is only a few miles distant from the pole of the former, and is therefore manifestly marked out by nature as the centre of the world's commerce. Her climate, also, neither too hot in summer, nor too cold in winter, and seldom too dry or too moist, is fitted to support a hardy and active race of men, whose energies would be weakened in warmer, or rendered

[1] "Give me," says M. Cousin, "the map of a country, its configuration, its climate, its waters, its winds, and all its physical geography; give me its natural productions, its *flora*, its *fauna*, and I pledge myself to tell you, *a priori*, what the inhabitants of that country will be, and what place that country will take in history, not accidentally, but necessarily; not at a particular epoch, but at all periods of time; in a word, the thought which that country is formed to represent."

torpid in colder regions. The easy communication maintained, by means of rivers, between her interior and the sea, the immense amount of water-power in all parts, and the mineral treasures in which she abounds, prove that she was intended to be both a commercial and manufacturing community. Other nations may possess some of these advantages, but none can boast of them all to the same extent; and in proportion as their physical condition resembles that of Britain, they will be great and prosperous like her. This commonplace delusion has gained a footing in men's minds; and a prejudice so flattering to the national pride, if once established, is not easily rooted out. One thing, however, has been overlooked—the mind which turns these advantages to account. Nations do not fall from their pre-eminence because their mineral treasures are exhausted, or the physical features of the country have changed, but because the energy of mind, which once administered the affairs of state or stimulated the enterprise of the citizens, has decayed. Spain has greater advantages than Britain for carrying on commerce with the rest of the world; she is not situated precisely at the centre of the land hemisphere, indeed, but she lies nearer the great trading regions of the earth, the Indies, the Tropics, the States of America, and the southern countries of Europe. History proves that her climate is equally well fitted to rear hardy and enterprising men, and the treasures of her soil, though of less value than those of Britain, are very considerable. Three centuries ago her people might have held similar language to that which is now current among us, and none could have foretold at that time the utter prostration of her power which has since taken place. The cotton manufacture, which has greatly contributed to raise Britain to her present eminence as a commercial nation, once flourished in Spain, whose inhabitants cultivated the plant in their own country, and might have procured it in any quantities from the New World, which they discovered.[1] Something more than the position and climate of a country determines its history: outward relations alone do not form the characters of men or

[1] In 1740, only 17,350 tons of iron were obtained from all the furnaces of England and Wales; in 1717, 7540 tons were imported from abroad, and of these 8714 tons were furnished by Spain.

nations. The climate, the shores, the mountains of Greece, are still the same as when Salamis or Marathon was fought, but the spirit that then animated her heroic sons is gone, and neither climate nor scenery can bring it back. The same considerations apply to Britain. Our island might have been inhabited by a race of men unable or unwilling to avail themselves of the resources placed within their reach:[1] coal and iron, tin and copper, might have been dug out of its soil, without ever leading to the idea of a steamboat or a railroad. There is nothing in the climate, scenery, or natural resources of Britain to compel invention or discovery, to impart practical sagacity or an enterprising spirit, and to unite many different parts into one harmonious whole. National character is undoubtedly affected by the position, appearance, and mineral treasures of a country, but it may overcome the barriers to prosperity and progress which they sometimes present, as the history of Britain during the last ninety years abundantly proves.

The real progress of Britain in the mechanical arts began at a comparatively recent period: not that they were thought beneath the dignity of a great people, but because ingenuity only then discovered how they might be made most effectually to develope the resources and advance the greatness of the country. A flourishing trade, not an extensive empire, has long been regarded as the best guarantee of Britain's pre-eminence among the nations: "An *estate's a pond*, but *trade's a spring:* the first, if it keeps full, and the water wholesome, by the ordinary supplies and drains from the neighbouring grounds, 'tis well, and 'tis all that is expected; but the other is an inexhausted *current*, which not only fills the *pond*, and keeps it *full*, but is continually *running over*, and fills all the lower ponds and places about it."[2] A century ago the steam-engines of Britain were few in number, and even these unworkable; her manufactures were limited almost entirely to woollen and linen goods;[3] man's power over iron was confined to the

[1] Towards the end of last century the Russians "imagined that we were completely at their mercy for the necessary supply of iron." Scrivenor's *History of the Iron Trade*, p. 93. The cotton manufacture has existed for thousands of years in India without giving birth to a single invention.

[2] Defoe's *Complete English Tradesman*, vol. i. p. 322.

[3] The silk trade, however, had made considerable progress before this

production of coarse articles at a high price; trustworthy timekeepers for the use of sailors were still unknown; and the muscles of men and horses were then sources of strength in innumerable works where they have long ceased to be employed. Many persons could remember when Holland had a larger share of the carrying trade of the world than any other nation, and when her manufactures and colonial productions were in greater demand than those of Britain. Half a century earlier, the linen and cotton manufactures could scarcely be said to exist in England; more fine linen was worn by the people than in any other country, but the greater part was imported from Holland, Flanders, and other places. Woollen cloth had been the staple production of England for centuries, and was exported by the Dutch and their neighbours to the principal states of Europe. The linen trade had been fostered in Scotland, and was then rising into importance; the quantity of cloth stamped for sale had increased between 1728 and 1732, from two to four millions of yards. At that time a competency, not a fortune, was sought by our merchants; and many of them made it their business to travel through the country with the goods they had for sale. There were either no roads in our island for inland traffic, or they were so wretched that they afforded little facility for trade, and were altogether inadequate to develope the natural resources of the country. Road-making and bridge-building, like all the other arts in which the principles of mechanics are involved, were in their infancy; and the good bridges of the kingdom were so few in number, that travellers set down in their note books the builders and sites of the best. In many respects the manufactories, the enterprise, and the skill of the British merchant are scarcely one hundred years old; and, judging from the activity that pervades every branch of the national industry, there is good reason for supposing that they have not yet reached their manhood, or indeed lost the first freshness of youth.

time: Defoe in 1720 estimated that above £1,200,000, which were formerly given to foreign manufacturers, were then spent on home-made silks. English manufacturers at that time, and for many years after, could not rival the delicate cotton fabrics of the East Indies, and restrictive laws were imposed on these articles to foster the home trade.

In the history of the arts as well as the sciences, eminent men have not unfrequently arisen in groups, and given a forward impulse to all the branches of a nation's industry at once. While each was labouring in his own department, unconscious of the influence he might exert on another, all were really working to each other's hands, and moving towards a point where further progress was forbidden without assistance from a totally different quarter. At no time was this separate, simultaneous, and yet mutually dependent progress of industry, more apparent than in the latter half of last century. Watt, poor in worldly wealth, but possessed of mental riches vouchsafed to few, was then toiling to realise an idea destined to effect more surprising results in the history of Britain than the wars, alliances, and legislation of centuries. Brindley, the neglected son of a dissipated father, though far inferior to Watt in acquirements, and scarcely able even to sign his own name, was successfully showing the strength of natural genius in the construction of canals, the tunnelling of mountains, and the building of bridges, which the more learned members of his profession pronounced impossibilities. Harrison, a poor carpenter, had gone up to London from his native county persuaded that he could solve the problem of finding the longitude at sea, and earn the parliamentary reward of £20,000; while he carried with him in token of success an ingeniously constructed clock, which amused the people and secured for him the respect of scientific men. Hargreaves, attempting to spin cotton yarn by machinery, had been mobbed in the west of England, and forced to leave that part of the country. Arkwright, reviving and improving the almost forgotten invention of spinning by rollers made thirty years earlier by Wyatt, had given up the trade of gathering hair for barbers; and though steeped in poverty, unable to spell or write correctly, and once mistaken for a vagabond, was struggling against terrified spinners, and scarcely honest capitalists, to introduce *water-twist*, and give Britain a new character in the commercial world. Smeaton, more favoured in circumstances, was building lighthouses on our coasts, spanning our rivers with handsome bridges, improving roads and mills, digging canals, and laying a good foundation for the subsequent development of the national resources.

Graham and others, a few years earlier, had suggested improvements in clocks, and presented the astronomer and the sailor with more accurate instruments than they ever before used. Each of these men represents at least one improvement in the mechanical arts, which has held its place to this day, and in some cases has been the parent of a multitude of others. Not one of them, if we except Smeaton, had received a college education. Watt, indeed, spent some years as an instrument-maker in the university of Glasgow; and the advantages he derived from intercourse with Black and Robison must not be underrated; but even he was only a mechanic, and was under greater obligations to his own genius than to the instructions of others. The latter half of last century was thus the spring-time of British industry, when the seeds of thought were first cast abroad over the nation, which have since yielded a harvest of wealth, prosperity, and ingenuity, without a parallel in the history of the world. To the men whose names are mentioned above most of the honour is due; they were the main agents under Providence in determining the development of the national resources; and, but for them, and those who caught the generous infection of their example, the physical conditions of British greatness might never have produced brighter results than the meagre commerce of the seventeenth and first half of the eighteenth century.

At the head of the illustrious men to whom the nation was indebted for the first steps in real progress, must be placed the name of James Watt. His influence on the mechanical arts of Great Britain was twofold—he showed how a source of power previously well known might be most advantageously applied; and he set a bright example of success in simplifying the working, and extending the province of machinery. Steam was known long before his time as an efficient mechanical agent, provided it could be brought under authority and made to do the work of which it is capable; but every scheme for employing it had failed: several of them had never existed except on paper, and the most successful had proved inadequate to the duties required. About the middle of last century many valuable mines had become almost unworkable in consequence of the quantity of

water which had accumulated in them. The expense of lifting that water to the surface from depths of seven or nine hundred feet would have absorbed the whole profits and left the proprietors in debt besides. No one feared that the mines were likely soon to be exhausted, but it seemed impossible to lift the treasures of coal, copper, and iron, to the surface without loss: the expense of drawing off the water alone in some places was above £10,000 a year. It was known that almost inexhaustible wealth was buried in these mines, though the time seemed rapidly approaching when they should cease to be wrought at all, in consequence of the expenses greatly exceeding the returns. Steam-engines had staved off this result for some years before Watt arose, but the quantity of fuel they consumed was immense when compared with the quantity of mineral and water they raised. These engines had been invented by an ingenious person named Newcomen, and it was with one of them, a model belonging to Glasgow College, that Watt began his experiments. He soon found, notwithstanding all his efforts, that it would not give the amount of work represented by the fuel consumed; and on examining the structure of the machine more closely, he was led to ask why the steam should first do its work in the cylinder and then be condensed there by a jet of cold water. Steam, like air, is an elastic fluid, and will rush into a vacuum communicating with a vessel in which it is contained. Let the cylinder of the engine be filled with steam; establish a communication between it and another vessel kept as free as possible of air, and in which a jet of cold water is playing, the steam will then be condensed, and the temperature of the cylinder will not be affected. This is the great discovery of Watt: he made others more ingenious, but none of greater utility; the best proof of its excellence is that it still keeps its place in the condensing engine after nearly a century of progress in the arts, although other improvements of his have been superseded by greater, or set aside as useless; and it will most likely do so until steam itself retire to make way for a cheaper if not a more powerful agent. Watt made his experiments with a little tin cistern, which is still preserved, and while busy investigating the subject he was once observed by a visitor kicking

it beneath the table to prevent questioning. That pigmy cistern has been the parent of a progeny of giants, and has astonished the world by the magnitude of the results produced from a cause apparently so insignificant.

The importance of Watt's invention is proved by the revolutions in almost every branch of industry to which it has given rise; the simplicity of it, by the effrontery with which his patent was disregarded and his lawful profits refused. Like all great inventions and good ideas, it is so simple and seems so obvious that one feels as if he could have produced it himself. Watt's improvements on the steam-engine were at first despised by the ignorant, and then stolen by the dishonest, who maintained that they were too obvious to deserve protection by patent or credit for the inventor. Ignorance and envy always pay ingenuity the compliment of saying, "We could have done that, if good luck had not enabled you to outstrip us."

The state of the mechanical arts at the time almost baffled Watt's attempts to carry his idea into execution. He had to struggle with poverty, but that might have been overcome; he had to encounter other obstacles, but they were not insuperable; for defective workmanship, however, arising from the backward state of the arts, he had no resource. Steam-engines were never really perfect until of late years they manufactured themselves; and Watt often experienced from this cause the bitterness of hope deferred, in the failure of experiments, and the useless expenditure of money. But, even after he had succeeded, and was prepared to manufacture improved engines, it was not an easy matter to obtain for him public favour and support. The invention was fraught with wealth, prosperity, and even safety to the empire; but only a few men like-minded with Watt himself were alive to its vast importance; the nation was indifferent. At the very time that Watt was engaged in the experiments which ultimately led to the construction of his engine, Parliament was awarding handsome sums of money to the makers of chronometers for finding the longitude at sea; but there was no national encouragement of that kind for improving the steam-engine, because men laboured under the idea that it had nothing to do with the maritime, and comparatively little with the

manufacturing interests of the empire. Unless Watt had possessed friends eager to help him, and pertinacity in invention besides, what chance could he have had of bringing his engines into general use? He was as unlike ordinary tradesmen as any person could be; he had neither push nor tact in buying and selling; and without these the brightest genius cannot succeed in the business of life. "Willing rather to face a loaded cannon than settle an account," and trembling at the name of a man with whom he had any transactions, Watt could not have got on without friends to force his improved engines into the market, and, what was better, to testify in all companies that he was the cleverest man in the British empire. Notwithstanding these difficulties, perseverance and genius united succeeded in introducing Watt's invention into general use, and laying the foundation of the astonishing progress in arts and manufactures which the nation has since made.

Although steamboats, perhaps, bulk more largely in our eyes than other benefits which Watt was the means of conferring upon mankind, it would be a mistake to regard these as the noblest monuments of his fame; progress in manufactures was contemporary with Watt's invention, and in course of time became dependent on it. Our textile and iron manufactures received an impulse at this period from the application of new or improved machinery, which, so far from having spent its force, has been increased from time to time by fresh triumphs of genius, and is still bestowing prosperity and wealth upon the nation. In one branch of industry has this forward impulse been especially apparent. The demands for cotton goods which began to pour into the towns of Lancashire from abroad about a hundred years ago could no longer be met by hand labour; spinners, chiefly women, were bribed to supply the weavers with yarn, but the weaver could not supply the manufacturer with cloth. Hand labour had reached the limit of its abilities in spinning, and genius at length furnished mechanism to take its place. The various processes through which cotton is prepared for the loom were long imperfectly performed by the hand, until the genius, the perseverance, and the vigour of Arkwright, who revived and improved machines that had been forgotten, as well as invented new ones, effected a revolution

in spinning and weaving, and introduced the present factory system. Of the numerous processes to which the cotton fibres are subjected, there are two in particular on which all the rest depend, and in which inventive power was most signally displayed. Cotton, flax, and wool, are received by the manufacturer in tangled heaps of fibres doubled and twisted among each other in every conceivable way, and he requires, in the first place, to lay these lengthwise and parallel. The carding machine enables him to accomplish this. Originally it consisted of rows of parallel steel wires, forming a wire-brush; cotton was placed upon them, and another instrument of the same kind, when passed repeatedly along the wires of the first, both straightened the fibres and laid them parallel. Great improvements on this were made by Lewis Paul and Arkwright, who substituted machinery for the hand, and furnished the spinner with a riband of cotton some hundred yards long, instead of the short rolls formerly stripped off the cards. If a row of cards be arranged along an arc of a circle, and a cylinder, of which the circumference is stuck full of wires, and the centre the same as that of the circle, revolve within it so that the wires are near each other, but not in contact, the cotton fibres will be drawn by the revolution of the cylinder between the upper and lower wires, laid parallel in the passage, and will emerge in the form of a riband of nearly uniform thickness. This riband, or "*sliver*" as it is called, is then stripped off the cylinder by a comb invented for that purpose, and may be made of any length whatever by furnishing a large enough supply of cotton at the beginning side of the machine. Although the fibres are now parallel, it is possible that some of them, having been caught in the middle by the wires of the carding machine, lie doubled up in the mass; and although the thickness of the ribands must be nearly uniform, it is not likely to be precisely the same in all; other operations, therefore, require to be performed before perfect straightness and equality are attained. Formerly hand labour not only prepared the riband, but also drew it out to greater fineness, and twisted the fibres on each other, as any one who has seen a spinning wheel at work must have noticed. Wyatt, however, in 1739, and Arkwright, with more success in 1769, the same year that Watt took

out his first patent for improvements on the steam engine, introduced the method of spinning by means of two or more pairs of rollers turning with different velocities. This invention has changed the character of the cloth trade; and is so simple, that it is surprising some one did not think of it earlier. If a riband of parallel fibres be caught between two rollers, of which the upper is pressed down on the lower by heavy weights, it will be drawn through and compressed as they revolve; but it will not be lengthened out. If, however, the end escaping from one set of rollers be caught between a second which turn twice or thrice as quickly, it will be drawn forward with greater speed than before. A known length of riband is passed through the first set by one turn; but if the second set be made to revolve twice as fast, the same quantity must pass between them in one-half the time; or, as the tenacity of the fibres prevents the riband from tearing across, it will be drawn out to double its former length and fineness. A slight twist is at the same time given to increase the strength of the "*roving*," as the attenuated thread is now called. By repeating the process, greater fineness may be attained, and a still further twist given; and, by employing a sufficient number of rollers, a thousand threads may be spun in this way as easily as one. Arkwright at first employed water power to move his machinery, and the yarn which he produced was therefore called *water-twist*. Such, in principle, were the two great inventions that effected an entire change in the manufacture of cotton, wool, and flax. The men by whom they were really invented, Paul and Wyatt, partners in the same establishment, did not succeed in securing for them public favour; while Arkwright, possessing more perseverance, and perhaps equal inventive power, carried off the prize of fortune and fame to which the original inventors were entitled.

Before Arkwright introduced spinning by rollers, Hargreaves, an ingenious mechanic of Blackburn, had contrived a frame in which a number of previously prepared rovings were drawn out to greater fineness and twisted into yarn, enabling one man to do the work of eight or even eighty. Arkwright's invention prepared the rovings and spun the yarn; Hargreaves' could do the latter only. The former

was best adapted for producing firm warp yarn; the latter for spinning the finer kinds used as weft. The union of the principles of both was requisite to perfect the art of spinning. Hargreaves (1767) attached the ends of several parallel rovings to spindles placed vertically in a frame; and, seizing the whole by a clasp at some distance, drew it from the frame, when the reduced roving was twisted by the rapid revolution of the spindle, and then wound upon a bobbin. The rollers of Arkwright and the motion from the spindles are united in the *mule* of Crompton, which was invented in 1779; and, after many unsuccessful attempts, made self-acting about thirty years ago; so that one spinner can make 800, 1000, or even 2000 threads at once. The rovings pass through rollers, which turn for some time and then stop; the spindles are placed on a carriage, which moves from the rollers after they have ceased to turn, and draws out the thread; the spindles revolve, the requisite twist is communicated to the fibres, and the thread thus spun is then wound on the bobbins as the carriage advances towards the rollers.

The power which gave motion to the rollers and spindles in the factories of Arkwright and his contemporaries was supplied at first by falls of water. Manufacturers were accordingly under the necessity of planting their establishments in districts where water power was readily obtained, however inconvenient these situations might be in other respects. Watt's improvements on the steam-engine, however, supplied them with what they wanted, at a higher price certainly, but in any place and at any time they chose. As soon as steam-engines were used to drive the machinery, factories might be set down in towns, made independent of drought or flood, and wrought by a motive power whose energies could be adapted with the utmost nicety to the work required. Steam-engines were accordingly employed in turning the rollers, and other machines used in spinning the cotton, as early as 1785; and the inventions of Watt and Arkwright, when thus combined, gave an impulse to the manufacture which neither of them by itself could have produced. But the triumphs of this combination were not confined to spinning. Several attempts had been made to weave cloth by machinery before 1769; but they had been unsuccessful or were soon

forgotten. When Dr. Cartwright in 1784 proposed to do this, his manufacturing friends pronounced it impossible. He was not discouraged, however, and though entirely ignorant of mechanics, he undertook to realise the idea. Success crowned his efforts; but the machine he contrived was rude and awkward, for his own loom was the first he had ever seen. Power-looms were not immediately introduced into the factories. They remained an unprofitable speculation until it was discovered, in 1803, that the warp might be dressed before being put in the loom, and the services of the man employed for this purpose dispensed with. The construction of the machine and the method of dressing have been improved since that time; and cloth is now woven by the help of steam with a rapidity and to an extent formerly unknown. A steam-engine of forty or sixty horse power gives motion to thousands of rollers, spindles, bobbins, for spinning yarn, and works four or five hundred looms besides. This gigantic spinner and weaver needs very little assistance from man. It undertakes and faithfully discharges all the heavy work of putting shafts, wheels, and pulleys in motion, of throwing the shuttle, working the treadles, driving home the weft, and turning round the warp and cloth beams. One man may now do as much work as two or three hundred ninety years ago. Labour is greatly lightened and the fruits of industry vastly increased by the assistance of this untiring fellow-worker.

The substitution of machinery in place of hand-labour in spinning and weaving has been productive of the most beneficial consequences to the whole kingdom, during the ninety years that have elapsed since the inventions of Arkwright and Watt were made. Results which the most sanguine never anticipated have been obtained, not in one branch of trade or industry, but in all. Really good steam-engines and mill-gearing could not be manufactured when mechanical power was first introduced. Both were indispensable to success, and a revolution in working iron was the result. For many years after Arkwright's time, heavy shafts of wood and cast iron, huge wheels and pulleys, slow motions and great friction, gave a ponderous and ungainly appearance to the factories, compared with the light wrought iron rods, the smaller wheels, the quintupled velocities, and the diminished friction of the present day.

The change which has taken place in the dress of the people is not less remarkable. A substantial tradesman in the beginning of last century got only his gaiters from Manchester, and reckoned Yorkshire cloth too coarse for his use; while his wife's muslins and linen were imported from abroad, and Manchester supplied her with nothing better than cotton quilting for a petticoat.[1] Some years before the century closed, however, it was remarked:—"Cotton goods are very much used in place of cambrics, lawns, and other expensive fabrics of flax; and they have almost totally superseded the silks. Women of all ranks, from the highest to the lowest, are clothed in British manufactures of cotton, from the muslin cap on the crown of the head to the cotton stocking under the sole of the foot."[2] This change in the articles of dress did not gain economy at the expense of appearance; on the contrary, "a country wake in the nineteenth century may display as much finery as a drawing-room of the eighteenth; and the peasant's cottage may, at this day, with good management, have as handsome furniture for beds, windows, and tables, as the house of a substantial tradesman eighty years since."[3]

Better roads and greater facilities for travelling followed next. The merchants of Manchester and Glasgow required to be brought into easy and rapid communication with the cotton-growing districts of the world. Liverpool is the port of Manchester, Leeds, and the populous country around; Glasgow of Lanarkshire;—hence the application of steam to the propulsion of river boats on both sides of the Atlantic, magnificent sea-going steamers, the Liverpool and Manchester Railway, the railway system of Great Britain and the world, the steam navy of the empire, and, to some extent, the electric telegraph itself. For more than four hundred years woollen cloth had been the chief manufacture and export of England; seventy years had not elapsed from the introduction of machinery into the factories before the value of the cotton goods exported was three times greater than that of the woollen, and

[1] Defoe's *Complete English Tradesman*, i. 346.

[2] M'Pherson's *Annals of Commerce*, quoted in Baines's *History of the Cotton Manufacture*, p. 235.

[3] Baines, i. 112.

before they formed nearly one half of the whole exports of Great Britain. Spinners, weavers, and many kind-hearted men, believed that machinery would deprive the poor of their bread, reduce an industrious population to beggary, and turn thickly peopled districts into wastes, tenanted by steam engines and spinning jennies; but Lancashire, from being third in point of population among the English counties at the beginning of the century, is now more populous than Middlesex itself.[1] The original thirteen states of the American Union have not increased at the same rate within that time, notwithstanding the multitudes of strangers who pour into them from all parts of the world.[2] It was long thought that the British workman could never rival the delicate cotton fabrics of the Hindoo; and it was even feared that the cheapness of labour in India would not only render it impossible to undersell the workers of that country, but would operate to the disadvantage of British industry. Machinery, however, spins finer yarns than Hindoo fingers, and enables the British merchant to buy the cotton of India, pay for its carriage to this country, turn it into cloth, and export it to Calcutta or Bombay at a profit. It is calculated that, about the middle of last century, there were probably 20,000 people engaged in the cotton manufacture in Britain, but from the last population returns it appears that there are now upwards of half a million, exceeding by more than twenty thousand the whole number employed in the silk, linen, woollen, and worsted manufactures of the island.[3] Instead of the beggary with which the operatives seemed to be threatened, they are now a much better paid and more intelligent class of men than ever, though it must be confessed

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	1760.	1801.	1851.	Increase per cent in 50 years (1801—1851.)
Lancashire,	297,400	672,565	2,031,236	201
Middlesex,	...	818,129	1,886,576	130
Yorkshire,	...	859,153	1,797,995	109
Lanarkshire,	...	147,962	530,169	258

[2] Population of United States in 1775, 2,803,000; in 1850, 13,189,570.

[3] These numbers refer to persons actually working in mills, and do not include others dependent on them for support.

that commercial crises, unhappy strikes, and the desire of gain, at whatever cost to the souls and bodies of men, have not unfrequently given rise to crimes and distress formerly unknown in the manufacturing districts of Britain.

But the sea as well as the land was destined soon to witness the triumphs of ingenuity and machinery: the present century has produced the process of diagonal bracing in the construction of ships, the application of Watt's engine to propel them, iron vessels instead of wood, water-tight compartments, and a multitude of other useful and important changes. Here, as in the textile manufactures, steam lies in a great degree at the root of progress, in shipbuilding and sailing. Among these various inventions, the application of the steam engine to propel vessels especially deserves notice; the first voyage of the first steamboat is too prominent an event in the history of the mechanical arts to be overlooked. Several of our countrymen in the end of last century, and beginning of this, attempted to employ steam as the motive power of ships for commercial purposes; but most of them failed, and one or two, who might have succeeded, wanted the necessary means or perseverance. It was reserved for an American citizen to execute, and an American river to witness, an enterprise the honour of which properly belongs to Scotland. Robert Fulton, who deserves the gratitude of mankind for the perseverance and ingenuity he displayed in this work, visited Europe towards the close of last century, and made several attempts both in Britain and in France to propel vessels by steam. Watt and Boulton supplied him with machinery, and many of his ideas were borrowed from Miller of Dalswinton and Symington, whose steamboat he inspected when in Scotland. From the first, Fulton regarded the steamer as a means of developing the vast resources of the western states of the Union, where 50,000 miles of river navigation, through a rich and fertile country, invited capital, enterprise, and population. Fourteen years elapsed, however, before success crowned his labours; many difficulties and disappointments were encountered; and, once, when a vessel which he had built, was ready for an experimental trip on the Seine at Paris, the boat broke in two, and the machinery carried the fragments to the bottom of

the river. In 1807 he launched his first steam-vessel on the Hudson, and inaugurated a new era in river and ocean navigation. The prejudices, which rendered the multitude both of the wise and the ignorant sceptical, before Fulton's ideas had been fully realized; and which drew them to the water side to scoff at an expected failure, were destroyed in a few minutes by the steady motion of the vessel. Her first trip was made on the Hudson, between New York and Albany, a distance of 150 miles. When we look back on that voyage, fraught with unspeakable benefits to mankind, how amusing is almost everything connected with it. The velocity of the steamer was only about five miles an hour, yet so rapid did this rate seem to those on board, that the ships they passed moving with themselves appeared as if at anchor! The pine wood used as fuel sent forth a column of ignited vapour many feet above the flue, and so appalled were the crews of the ships on the Hudson as they saw this fiery monster moving towards them in the darkness against both wind and tide, that some abandoned their ships, and others thought their last hour was come! Between 1807 and 1812, the year in which the Comet, the first British steamer, began to ply on the Clyde, steamboats were introduced on almost all the larger rivers of the United States, and the increased demand had also pointed out the disadvantages under which they laboured and suggested improvements. Even after the beneficial influence of steam in river navigation had been fully proved—so slowly do real improvements become popular—cattle were employed to drive the paddle-wheels of ferry boats in America. They gave motion to a large horizontal wheel, which worked another vertical, and in this way drove the shaft to which the paddles were attached.

But there is another application of steam power of which Fulton deserves the credit. During the war between Great Britain and the United States in 1814, the coast of the latter was very much exposed to the insults and ravages of our cruizers. Fulton proposed to free his countrymen from this annoyance, and to defend the harbour of New York from attack, by means of steam-frigates. That which he actually did build, although it was not required, was pierced for thirty guns, and resembled the double boats or *twins* constructed by

Miller of Dalswinton. But it was not to cannon and rapid movements only, that the merchants of New York trusted; for she was fitted with machinery calculated to discharge an immense quantity of hot water through the port-holes of an enemy's ship, by which the ammunition would be rendered useless, and the crew scalded to death. The people of New York believed themselves safe against every hostile power, and the liveliest apprehensions were entertained in Britain; cutlasses without number were said to be moved by machinery; pikes, darted forth and withdrawn every quarter of a minute, would sweep the decks of our men-of-war; in short, the iron fingers of a modern Scylla would kill the sailors at their posts. Little did either nation imagine, that before the lapse of forty years, Great Britain would depend on this very application of steam to maintain that supremacy at sea, of which many supposed it had deprived her.

Various difficulties prevented the steam-engine from being applied to navigation at an earlier period. In mines and mills there is usually plenty of room for the play of the working parts; but in the hold of a vessel, the amount of space at the disposal of the engineer is limited, and there was great difficulty in adapting the engine to these altered circumstances. As much room as possible required to be left for the cargo, and it was not desirable to have the beam and piston-rod projecting above the deck, although the small depth of the hold seemed to render that unavoidable. But there was another serious difficulty—how was the steam-engine, even when fitted to the confined hold of a river boat, to urge the vessel through the water? Symington used the crank, Fulton the sun-and-planet wheel, and both used the improved water-wheels of Miller. A single engine with a fly-wheel worked the paddle-wheel shaft, but a heavy fly-wheel might be dangerous in river boats, and was totally inapplicable to sea-going steamers. If it be employed to equalize the action of the crank and to give uniform motion to the shaft of the paddles in the latter, a breakage might be the effect of the first plunge on leaving the harbour. An increased resistance would be thrown upon the float-boards, the fly-wheel would urge the shaft round, and a break or a strain would be the result. An easy remedy, however, was

at hand; instead of one cylinder two might be employed; and instead of one crank, two, as in the locomotive, where two cranks at right angles to each other produce nearly uniform motion in the axle of the driving wheels. But the expediency of using paddles at all was soon questioned. They take up space which might be better employed, they may be too deeply immersed at the beginning of a voyage and too little at the end, owing to the diminished draught caused by the consumption of one or two hundred tons of coals, and in a ship-of-war they are prominent marks to an enemy's shot. These objections to paddle-wheels have led to the introduction of the screw propeller into the merchant service and the navy. Where speed must be attained at whatever cost, paddles are employed; where economy in the use of fuel with more room for the stowage of goods are of primary importance, the screw is preferred. As an auxiliary power the latter is well adapted to vessels, the former much less. In ships-of-war, when paddle-wheels are used, the height of the machinery and the use of paddles are serious objections, both from the space they occupy on the upper decks of the vessel, and from the greater ease with which they may be crippled by an enemy. Paddle-wheel steamers certainly have been engaged with forts without damage to their machinery; but in an action between two fleets they would soon be rendered useless. The screw leaves a clear broadside for the guns, does not prevent the use of sails, and allows the machinery to be placed six or eight feet below the water line, thus leaving the upper decks free for working the guns. The progress of the screw in the navy since 1839, when the Rattler, the first war-ship fitted with it, was built, has been most rapid. In 1852, there were 125 *armed* steamers, both paddle and screw, in the navy, carrying 800 guns; at the great naval review of last year, nearly twice as many steamers, principally screws, were assembled, carrying double the number of guns.

The triumphs of steam and ingenuity, however, were not confined to the mines, the navigation, and the textile manufactures of the empire; for the progress that has been made in these branches of the national industry would not have been so great, unless important improvements had been effected in smelting and working iron. About the middle of

last century (1740), the iron trade of Great Britain was threatened with destruction; the number of tons produced annually had fallen in a few years from 180,000 to 17,000. Ironstone was known to exist in inexhaustible abundance throughout the kingdom; but the forests were protected by law; and wood, then deemed indispensable in reducing the ore, could not be obtained except in small quantities. A few years later (1750), the ironmongers of Birmingham affirmed, that not half the quantity of iron required in the trade was got from our own mines; and their statement was undoubtedly true. It was discovered, however, that the metal could be extracted from the ore by means of pit coal, provided the fire were well blown as the smelting proceeded; and a great extension of the iron trade was the result. Water-wheels or steam-engines could work the machinery that supplied the blast; coal was as abundant as iron: the consequence was, that the produce of the British furnaces at the end of the century was upwards of 150,000 tons against 17,000 sixty years earlier; and it has gone on constantly increasing. A further extension was given to the trade in 1783-4 by the inventions of Mr. Cort, who spent a large fortune in bringing them to perfection, and was rewarded with opposition from the manufacturers, robbery by Government officials, and ingratitude from the nation. It is a singular and a mournful fact, that every one of the great improvements to which Britain owes her present prosperity, has fought its way in the world against clamour, knavery, and contempt. An increase in poor-rates, and a general distress among work people, were thought inevitable on the introduction of an important piece of machinery. Combinations not to use it, nor to buy what it produced, were sometimes formed among intelligent men; but as soon as the inventor began to make money and employ more hands, an outcry was raised by less able rivals that the improvement was of national importance and ought not to be protected by patent. Law pleas, poverty for a time at least, and sometimes for life, and petty annoyances of every kind, were too often the inheritance of inventors, whose genius has done as much for the nation as the most distinguished naval or military chief of whom it can boast.

The inventions of Mr. Cort were made at a time when the iron trade of Britain had again come to a stand. British science was long unable to produce good wrought-iron from the pigs furnished by our own furnaces, and the mechanical contrivances for adapting it to use in the arts were slow in operation, expensive, and unsatisfactory. On the one hand, Britain was to a great extent dependent on foreign nations, especially Russia and Sweden, for a supply of bar-iron, and large sums of money were sent out of the country every year in consequence; while, on the other, workmen could not meet the increasing demand for iron articles which were ordered from abroad, and the trade seemed likely to pass into new channels. Genius again warded off this danger, and turned our treasures of coal and iron to account. After much labour and many failures, Mr. Cort showed how the pig or cast-iron drawn off from the furnace may be turned into malleable iron, by means of pit coal, though only in very small quantities at a time. Others followed in the path that he opened up; new processes were introduced into the art, and Britain was again enabled almost to monopolise the iron trade of the world. But the mechanical improvements made by Mr. Cort were not less important. Before his time, the wrought iron formed in the furnace was prepared for use in the arts by the shingling hammer which beat out the hot piles of metal into bars two or three yards long, and then welded several of them into one. There were certain limits, however, to the dimensions of the bar, beyond which it was not possible to employ the hammer; and not only was the process itself slow, but it required to be supplemented by another still slower and more expensive. The smallest section of bar-iron drawn under the hammer was three quarters of an inch square, and twelve hours were spent in finishing a ton of average sizes, about a fifteenth part of the work that can now be done in the same time.[1] Bars of smaller sizes, of which great numbers were required for wire, nails, and other articles, were made in the splitting mill, by dividing into pieces of less dimensions the bars formed under the hammer. Mr. Cort, borrowing the idea perhaps from the

[1] Scrivenor's *History of the Iron Trade*, 121.

cotton factory, proposed to employ heavy rollers in reducing the balls of wrought iron taken from the furnace, into forms required in the arts; and this invention was another of the important steps which saved the British iron trade, if not from destruction, at least from serious crippling. If a semi-elliptical or circular groove be formed on each of two cast-iron cylinders, turning nearly in contact, a heated slab of wrought iron, seized by one end between them, will be reduced in dimensions as it is drawn through, and will take the form of the groove. Passing it immediately through another groove of smaller size, its section will be still further reduced and its length increased; and by repeating the process sufficiently often, a rod of the required fineness may be got.[1] Bars can also be welded between the rollers, formed into plates, squeezed out into the shapes in which they are used in the arts, and treated with a freedom to which manufacturers were entire strangers before Mr. Cort's time. Without the assistance of the steam-engine, these results could not always be attained. The rollers make from 60 to 400 revolutions per minute, or travel as fast as ordinary railway trains, and it requires a powerful engine with a heavy fly-wheel to carry the plates through. Sometimes, however, the forge hammer must be employed for work which the rollers cannot perform. The shafts, to which the paddle wheels of steamers or the driving wheels of locomotives are keyed, could not be manufactured between cylinders, or under the old forge hammer. The former in some cases weigh twenty tons, and are many feet in length, and uniform strength throughout the mass, as well as thorough welding of the several pieces, are indispensable. Nasmyth's steam hammer is the best that has been invented for such work. A heavy block of cast-iron, sometimes five tons in weight, and attached to the lower end of a piston rod working in an inverted cylinder, is lifted by admitting the steam beneath the piston, and then allowed to fall upon the work by its own weight; or, by a little management, it may be made to slide up and down without striking at all. The heaviest work is forged under the blows of this ponderous

[1] Sometimes the bars are reduced to wires fifteen times their original length, and only one quarter of an inch in diameter.—*Encyclopædia Britannica.*

hammer, which acts with an energy that the strength of iron cannot withstand, and yet is kept in such control that a nut-shell may be cracked or an egg chipped as easily as iron beams are welded or shaped.

It is unnecessary to mention all the machines, by the help of which man maintains his power over this most useful metal. There is still much room for improvement in both the chemical and mechanical processes by which it is prepared for the market, but the progress of the past seventy years justifies the hope that these cannot be long delayed. Britain can only retain her pre-eminence in the arts by improving what is old or inventing what is new, and there seems no lack of energy among her people in doing both. The last seventy years have witnessed at least two revolutions in the working of iron, and the next seventy may produce as many more. At present, iron blocks are squeezed between rollers, or compressed in the jaws of an iron alligator; two or three are welded into one, or formed into a sheet, and squeezed out to greater thinness; huge shears, working with marvellous rapidity, clip three-quarter inch plates at the rate of ten feet each stroke; circular saws, moving with greater speed than the fastest railway trains, cut railway bars in two with a precision otherwise unattainable; heavy hammers unite ponderous beams of iron; light ones, striking a thousand times in a minute, assist in manufacturing the smallest articles required with the utmost rapidity and accuracy; holes are punched through masses of iron almost a foot thick as easily as if they were pieces of wood or cheese; and sheets are nailed together with a firmness that gives to hundreds of united plates the stiffness of one. Britain may claim for herself the credit of nearly all these improvements; but the physical conditions of the country, whatever influence they may have had in inciting to research, could never of themselves have produced them.

Besides the inventions made of late years for rolling and hammering iron, there is another of the highest importance, which has contributed as much as any to cheapen and perfect the articles into which this metal is manufactured. The interior of a steam cylinder must be of uniform diameter from top to bottom, valve faces accurately planed, and piston-rods of the same thickness throughout; but both before and

after the time of Watt, whose improvements made perfect forms indispensable in the construction of steam engines, accuracy of workmanship was left to the eye and skill of the workman. The immense number of machines now required in the arts must certainly call forth skill in an uncommon degree, and discipline the eye to greater accuracy; but the tendency of modern science is to leave nothing, or as little as possible, to the eye or artistic skill: it aims at perfection. In the period which preceded the inventions of Watt and Arkwright, there was very little demand for greater accuracy of form than the workman himself could supply. Supposing that he wished to turn an iron rod in the lathe, he had nothing to trust to but his own unaided strength to force the cutting tool against the bar, and dexterity was his only resource for producing a rod of uniform thickness. Although the formation of a wooden rod in this way requires neither much labour nor much skill, the case is widely different when it becomes necessary to turn a bar of iron in the lathe. If the workman cut too deep in any place, he will require to go over the whole of the work again, or leave it imperfect; in this way the rod might be spoiled by being made too thin, or rendered useless by being left thick in one part and thin in another. About fifty years ago this was actually the case: everything depended on the eye and skill of the workman, and perfect forms in machinery appeared unattainable. True lines, circles, planes, spheres, cones, and cylinders of iron, were objects of earnest but seemingly hopeless desire to practical men; the expense of attempting to obtain them was great, the result unsatisfactory. Engineers avoided these forms in their works as much as possible; and their economy in using them is in striking contrast with their prodigality at present. Maudslay of London, by his application of the *slide rest* principle, has changed the state of things entirely. What necessity is there for allowing the cutting tool to lean against the chest of the workman? A fixed support will do the work a great deal better; it will evidently cut to the depth required, and will take off neither too much nor too little. The duty of the workman in that case would be to slide this rest or support along the face of the work in the lathe, and parallel to the axis round which it was revolving; shavings

would then be taken off to the same depth throughout, and uniform thickness in all parts secured. But even this is not necessary; the machine may be made to slide its own cutting tool along, and the services of the workman, except at the beginning and end of the operation, dispensed with altogether. This principle, so simple in its nature, has been applied to the turning of rods, the planing of surfaces, the boring of cylinders, the formation of cones, the cutting of screws, and other purposes. Instead of the indifferent articles which left the iron factories about half a century ago, the cylinders, rods, and tables which they send out now are as perfect as can be wished. At first, the imperfect tools with which the workmen wrought rendered accuracy impossible; but each tool made on this principle was better than its parent and a step nearer perfection. An ill-planed surface could not produce another altogether faultless; but it could turn out an article better than itself, and perfection was reached by degrees. Excellence of workmanship, however, has not been attended by advance in price; here, as in every other department of industry, machinery has both perfected and cheapened the products of manual labour, besides releasing men from toils to which flesh and blood are unequal.[1]

The progress of the branches of industry already enumerated soon led to great changes in travelling and in the carriage of goods. In the first half of last century, carts and horses' backs were the only means of conveying goods throughout the country; and there were very few of the former in some of the richest districts of Scotland.[2] Pedlars knew by experience the load which a horse's back could bear, and curiosity led men of science to put down the breaking weight or an approach to it in their text books.[3] Another way of conveying goods to short distances had been greatly improved about 1730, and was then practised in

[1] "One has only to go into any of those vast establishments which within the last ten years have sprung up for the purpose of supplying the demand for machinery, and we shall find that nine-tenths of all the fine mechanism in use, and in process of production, is through the agency, more or less direct, of *the slide rest and planing machine*."—Nasmyth, in *Buchanan's Essays on Mill Work*, i. p. 404 (1841).

[2] Falkirk possessed *three* in 1750, according to Pennant.

[3] Desagulier's *Course of Experimental Science*, i. 274.

several places. When coal pits and quarries were near a river side, especially if the ground rose considerably from the water's edge, it was usual to lay down an oak railway between the pit and wharf, and to furnish the wagon wheels with broad flanges to keep them from slipping off the rails. Trains of wagons were allowed to run down an incline by their own weight, or were dragged along the level ground by horse power; they were easily stopped by locking the wheels. Carts loaded with four tons, the weight which some of these wagons usually carried, would have sunk deep in the ground on the wretched roads of those times; and this was one of the great advantages gained by employing an "oaken frame." No one at that time appears to have thought of connecting the larger towns of the kingdom by lines of railway like these, and the nation had to pass first through two useful revolutions, effected severally by canals and stage coaches. About the middle of last century travellers journeyed from place to place on horseback; pedlars and merchants used strong little horses for carrying their goods; the servants of noblemen supplied their masters' castles with fuel, by transporting coal or peat for many miles in the same way; and occasionally a successful merchant might be met conveying his stock in trade from town to town in a one-horse wagon. The northern parts of Scotland, even in 1770, were a land of myth and darkness to our southern neighbours; many of the Highland mountains, according to report, were covered with everlasting snow;[1] the longest river in the country was only guessed at; the heights of the mountains were unknown.[2] Even in the beginning of the present century, so wretched were the conveyances in the south of Scotland and the north of England, that Sydney Smith compared a company of travellers in a post chaise of those times to a party of prisoners on their way to Newgate.[3] Canals, however, on a great scale were begun in 1758, and rapidly spread in both divisions of our island, but especially in the west of England. Liverpool supplies the country to the east and north with the productions of other lands, and also exports

[1] Pennant, *Tour in Scotland*, i. 207.

[2] Maskelyne's celebrated observations on Schihallien were begun in 1774.

[3] *Life*, i. 19.

the woollens of Leeds, and the cottons of Manchester. Easy communication between these towns was therefore of the utmost importance to the manufacturing interests of the nation. Canals were thought of; but the science of the day was frightened at the difficulties to be encountered in their construction, and declared the thing impossible. Valleys had to be crossed; mountains to be levelled or bored; and rivers spanned. How was it possible to carry a river across a river, through a mountain, or from side to side of a deep valley? The feat has been accomplished; the difficulties that lay in the way have been overcome, and we are now unable to estimate their greatness. Brindley undertook the work. He was laughed at as a fool, written down as a man of no education, and charged with squandering his employer's money on impossible projects; but he persevered. He had faith in his own abilities, and could inspire others with confidence. Some time elapsed; and this self-taught genius from being the laughing stock had become the idol of England; his cuttings, bridges, tunnellings, and contrivances were the wonder of newspapers, and the common talk of family circles. In fifty years canals had done their utmost as a means of inland carriage, and the industry of the nation was again checked: imports could not be conveyed to the interior, nor exports forwarded to the coast to meet the demands of consumers. Manufacturing firms in Manchester had to take their turn in getting goods from Liverpool; and not unfrequently the complaint was heard that cotton was conveyed across the Atlantic in less time than between these towns. Travelling was unavoidably slow; accidents or frost rendered the transport of goods at times impossible; and factories were put on half work, because the canals could not furnish the necessary supplies of cotton. Tram roads, as the railways were then called, seemed to offer a remedy. They were extensively used in the mining districts, where cast iron rails had taken the place of the "oaken frame," about 1760; and locomotives had been invented in 1784 by Murdoch, the ingenious assistant and afterwards the partner of Boulton and Watt. So useful had these railroads been found that the proposal to levy a tax on iron in 1806 was opposed, because it would increase the expense of construct-

ing them about £700 a mile.[1] At first they had been laid down for short distances only; but, in course of time, the proprietors of mines considerably removed from rivers were emboldened to increase their length to seven, ten, and even twenty miles, by the facilities they offered for the conveyance of coals and goods. Locomotives came into use, in 1804, though the machinery was still very imperfect, and the ideas of engineers very crude. They were much improved in the course of the next twenty years, and a speed of from four to seven miles per hour was attained, with a prospect of greater. High pressure engines required to be used, and there is something in the very name that has always frightened the ignorant; the boilers had been formed of cast iron in some cases at first, and the results, as might have been expected, were unsatisfactory and alarming. The difficulty of arranging the parts of a high pressure engine on a movable carriage, and the apparent impossibility of furnishing enough of steam to make the wheels turn at the rate of twenty or even ten miles an hour, retarded the progress of the locomotive. If a wheel, four feet in diameter, turn 110 times in a minute, or travel at the rate of fifteen miles an hour, each cylinder will take from the boiler 220 fills of steam per minute; and it is not surprising therefore that many thoughtful people, whose opinions were entitled to respect, regarded a speed of fifteen or even ten miles an hour as unattainable. Where learning failed, however, natural genius triumphed. George Stephenson, once a locomotive stoker in the north of England, and afterwards one of the most distinguished engineers of modern times, invented the tubular boiler, and raised the speed of the engine from seven to thirty miles an hour. A large heating surface is indispensable to generate the steam required; but the space allowed for the whole engine on the carriage is necessarily limited, and Stephenson's ingenuity was exercised in providing the former without unduly increasing the latter. The flame and heated air leave the fire-box at a very high temperature, and much heat would be wasted if they were allowed to escape immediately into the atmosphere. Stephenson had already made an improvement on locomotives, which enabled him to supplement

[1] Scrivenor, *History of the Iron Trade*, 99.

the ordinary operation of the furnace by this heated air. As high-pressure engines are used, the steam escapes from the cylinder, after having done its work, at a high temperature. If allowed to escape into the atmosphere immediately, so much power would be wasted; if made to pass into the smoke-box, and then conveyed up the chimney, it would act as a powerful blast upon the fire. Instead of blowing the fire, it blows the chimney; and more air will of course enter the fire if the chimney be cleared more quickly. This, then, was Stephenson's first great improvement, and it enabled him to give effect to another. Putting the chimney at one end of the boiler, and the fire-box at the other, he connected the two by a number of metal tubes passing from the back of the furnace to the smoke-box. Hot air, escaping through these tubes, heats the water by which they are surrounded, and enables engines to travel at the rate of twenty, sixty, or even seventy miles an hour. By increasing the number of these tubes, and diminishing their diameter, the heating surface may be rendered much larger; but there are limits beyond which it is neither safe nor economical to reduce the size of the tubes. With an engine constructed on this principle, Stephenson gained the prize offered by the Liverpool and Manchester Railway Company in 1829, and placed beyond doubt the propriety of using locomotives in preference to horses or stationary engines. Other parts of the locomotive which he constructed were not so suitable, and room was left to the inventive powers of his successors; but the great object had been attained; a speed of ten miles an hour with ordinary loads was now certain, and thirty miles was not impossible. The manufacture of these engines became a regular and lucrative trade; and almost every year since 1830 has witnessed an increase in their number and power. Stephenson's prize locomotive, the Rocket, weighed four tons and a quarter, and ran on rails of thirty-five lbs. to the yard; engines are constructed now weighing more than thirty tons, and running along rails of eighty lbs. to the yard.

Quick travelling, and greater facilities for inland commerce, were the immediate results of railroads and locomotives; but others followed in a few years. Engineering problems, sometimes the same as those which baffled the skill of a pre-

ceding generation, were presented under forms of greater difficulty, and new questions arose where there was neither experience to guide nor rules to direct. A better proof could scarcely be wished, that the energy of the British mind has not decayed during the past century, than the success with which obstacles were overcome, which threatened to check the progress of railway enterprise, or break the network of lines then proposed for connecting all the large towns of the kingdom. It was in the art of bridge-building especially that these triumphs were achieved. Bridges of stone and wood have been known since the earliest times; the arch is found among the monuments of ancient Egypt; suspension bridges have existed for ages in Asia, and were thrown across the ravines of Peru long before the arrival of the Spaniards. To the present generation of British engineers was reserved the honour of proving what wonders might be effected in this art by the use of iron. Cast-iron bridges were proposed in 1773, and an arch, consisting of five semicircular ribs which supported the roadway, was shortly after thrown across the Severn near Colebrook Dale. During the next fifty years, a considerable number of cast-iron bridges were erected. Rennie in 1819 built one across the Thames, in which the centre arch had a span of 240 feet; and Telford, a few years after, proposed to throw another twice the size across the Menai Straits, and rising at the crown 100 feet above high-water mark. When railway enterprise gave greater scope to engineering, it was found that cast-iron beams, supported on pillars of stone less than forty feet apart, would form a much more convenient and cheaper form of bridge than the cast-iron arches formerly in use. Both kinds were used on railroads; but experience has shown that in spans of about 100 feet, the girder bridges are unsafe. Hollow beams of wrought iron are found stronger and cheaper; a wooden platform carrying the rails is suspended between two of them, and the piers on which they rest are sometimes 150 feet apart. Rivers, canals, and streets are spanned by these bridges. The heaviest trains pass along them with perfect safety, and the beams are so stiff, that the bending which then takes place is only detected by very careful observations.

An iron beam has a very different shape from one of wood. The particles on the top are forced together by a superincumbent weight, those in the bottom drawn asunder; compression takes place above, extension below. Cast-iron has the property of resisting the former in a high degree, while it very readily gives way to the latter; wrought iron, on the contrary, has less power to resist compression than extension. A cast-iron pillar may be safely loaded with an immense weight on the top; but it is not so safe to draw it out in the direction of its length. A bar of wrought iron, again, will carry an enormous load suspended from it, but would not answer so well if used as a pillar to support roofs or heavy weights. Hence, when these metals are used for railway bridges, the roadway is laid on the top of cast iron, but generally suspended from the bottom of wrought iron girders. Although these principles are well known now, ignorance of them at first led to constructions in which there was less safety and more expense than in recent bridges. When a beam gives way, economy and strength require that it yield at neither top nor bottom singly, but in both at once; and to accomplish this, the section of the beam at right angles to its length, must not be a square or rectangle, but of some other form. Cast iron resists compression with at least six times the force that it resists extension; and there must therefore be six times more matter in the under than in the upper side of a cast iron beam. The middle part or rib serves to keep the top and bottom together, and is not made so thick at either; the section of a cast-iron girder will thus be like an inverted T. On the other hand, greater thickness of metal should be thrown into the top than the bottom of a wrought iron beam, and the strongest section in that case will be of a different form. Mr. Fairbairn, the eminent engineer of Manchester, who introduced wrought-iron girders, found that it was more convenient and safe to make the top cellular, instead of using thicker plates than in the bottom. The stiffness of the bridges which he constructed, showed the value of this improvement, and was afterwards a means of solving the most difficult problem in engineering that the world has yet known.

As it is necessary, for many reasons, that the natural

barrier between England and Ireland should impede the communication between the two countries as little as possible, it is desirable that means of transport should be provided at the narrowest part of the sea which separates these two portions of the empire. Holyhead, besides being the most convenient harbour on that part of the coast, is only 62 statute miles from Kingston, the port of Dublin. But Holyhead can only be reached from the mainland by crossing a strait of difficult navigation, and it is therefore desirable to carry a road over it which shall free the traveller from the necessity of changing his conveyance. These considerations led to the construction of Telford's celebrated suspension bridge in 1826, and were again brought forward when it was proposed to construct a railway between Chester and Holyhead in 1844. Cast-iron arches of 360 feet span might have carried the railroad across, but the Commissioners of Admiralty would not give their consent. It was at last found necessary to construct a level platform 450 feet in clear span, and 104 feet above high-water mark. Experience had proved that suspension bridges, however strong, are unsafe, in a place so exposed to storms as the Menai Straits, but even the principle of a suspension bridge was inadmissible. One had been constructed some years before for a railway over the Tees, and it turned out an entire failure. Mr. Robert Stephenson, the engineer for the line, at last thought of spanning the strait by a tunnel of wrought-iron stretching from side to side, and allowing a passage for trains through its interior. His ideas on the subject, as might be expected, were crude enough; the possibility of such an erection was doubtful, and the form which it ultimately assumed resembled its inventor's ideal only in being hollow, and forming a tunnel for trains. A number of questions required to be answered before a tubular bridge, as the new invention was called, could be built. Should it be supported by chains or left to itself? what should be the form of the tube? elliptical, circular, or rectangular? where was most strength required? where least? and how could the greatest strength be secured with the least expenditure of materials? These points could only be determined by careful experiments, and for this purpose the assistance of Mr. Fairbairn was requested.

The correspondence between the two engineers who thus became associates in a great enterprize, has been woven by the latter into a narrative, recording the gradual progress of the original idea towards perfection, with the comments of the principal parties engaged on the various difficulties that arose in the course of the experiments. It differs from a romance unfortunately in this, that while the latter generally ends with harmony among the chief actors, in this case an unhappy disagreement about the division of the honour mars the interest with which one reads the story. After many experiments, and much anxious consideration, the project assumed a shape well calculated to alarm the directors, and render the public incredulous. It was seriously proposed to build an iron box 460 feet long, 30 feet high, and 14 feet broad, on the banks of the Menai Straits; to float this mass of 1450 tons at high water to openings in piers prepared for its reception; to lift it upwards of 100 feet, and build solid masonry underneath for its support; to rest it at its utmost height on cast-iron rollers, which would allow it to expand and contract as the sun rose and set, or as summer advanced and waned, and then to make it a tunnel for the passage of railway trains weighing, perhaps, a hundred tons. The properties of wrought iron were not well understood when the experiments were begun, which emboldened the engineers to recommend this project to the directors. Experience made Mr. Fairbairn confident that there was no danger of the bridge giving way under its own weight; and numerous experiments on a large scale proved the truth of his opinion. Chains were as unnecessary to support this bridge as intermediate piers, even if the latter could have been built. Its strength is derived from a different source from either. The roof consists of two platforms, 1 foot 9 inches apart, and 14 feet broad; this space is divided into eight equal parts by partitions running from end to end of the bridge; and the cells thus formed keep the tube from giving way to compression in the top, where the material is most liable to be injured. Two of these stupendous bridges were constructed for the Chester and Holyhead line. The first was built on the banks of the Conway river (1848), and now spans that stream not far from the suspension bridge erected by Telford on the

Holyhead road about twenty years earlier. Two tubes of 400 feet span were required, one for each line of rails. A train of wagons, weighing altogether 301 tons, was placed in the middle of one of them; and the deflection in the centre amounted to 11 inches. It was found also that the rollers on which the bridge rests allow the tubes to expand or contract with the ever-varying temperature of the day or season; the huge mass swelling in all directions under the heat of the sun, and shrinking in as his beams become less powerful. The Britannia bridge over the Menai Straits was finished about a year after, and is justly regarded as the greatest triumph of engineering that this or any other country has ever witnessed. A splendid tower rises to a height of 230 feet from a rock in the middle of the straits; and four tubes, each 460 feet in length, stretch from it to smaller towers on the banks. Other four tubes, of 230 feet each, carry the railway to the high grounds on the east and west sides of the straits. This magnificent bridge was the culminating point of railway enterprise and engineering; and half a century may elapse before necessity produces its rival.

The extension of railways in Britain led to other important results in the mechanical arts. Numerous and elegant bridges were built over rivers, canals, and roads, sometimes at right angles to their course, often at any angle whatever; hills were bored through, or removed piecemeal to long distances; embankments, miles in length, supported roadways far above the surrounding country; tunnels were carried under the foundations of cities, and viaducts above their chimney tops. These results have been effected in less than thirty years, and it would be an endless task to trace the ingenious contrivances they suggested, the improvements in art and science to which they led, and the increase of domestic happiness which they have produced.

There are many other departments of industry in which mechanical genius has either lightened labour, or extended science. A selection from the triumphs which it has achieved in Britain, leaves as many untold as it is possible to condense in the brief space at our disposal. The preceding pages will give the reader some idea of the strides which the country has made since 1769 in the application of machinery to the

useful arts; and they will suggest the questions, Is the country still progressing? And, if so, is there any limit to its advance? Some are of opinion that Britain has reached the summit of greatness, and that decline has already begun; but there is no evidence of weakness or decay in the sagacity and enterprise of her people. They may slumber for a time; but when great occasions call them forth, inventions and improvements, surpassing the boldest conceptions of previous generations, are the result. Neither does there appear to be any limit to the advances Britain may make in all the branches of mechanical industry. New fields of enterprise are opening up; difficulties without number have still to be overcome; and men are not only alive to the obstacles which forbid further progress, but bent on effecting their removal. With Providence watching over the nation's welfare, there is no reason to doubt, that a century hence will find Britain as far in advance of the present day, as the present is of the times of Watt and Arkwright.

J. S.

SCOTTISH BALLADS.

A GREEK girl traced the shadow of her lover's face on a sunny wall. That, says the legend, was the birth of painting. The death of one of the lions of the early world may have given birth to the twin arts of poetry and music. The barbarian returning to his village laden with the spoils of the chase, or driving before him a crowd of captives, must have a poet to rehearse his triumphs, to celebrate the strength of his arm and the terrors of his unconquerable spear. To some such rude source we may trace back the sacred streams of poetry and music which have flowed down to us out of unknown time. From his power of conferring a new distinction on warlike achievements, the bard or singer has ever been held in respect. His songs are a kind of rude fame. He is the depositary of the traditions of his tribe. His memory is the archives of his people, and therein are preserved their rolls of glory. We find the singer in every ancient nation, by the rainy shores of the Baltic, in the vast Germanic forests; and every where he is regarded as one possessing surpassing knowledge, who has mysterious kindred with the elements, and who in solitary places hears the messages of the gods. He passes from land to land, walks into the heart of hostile camps, and sits down at the very carousals of his foes. He finds a welcome in the den of the robber, and in the rush-strewn hall of the prince. When at rich and solemn feast the monarch is seated on the dais surrounded by his earls, there is also the minstrel and his harp. What were a banquet without song

and the recital of the deeds of heroes? The wild boar's flesh is tasteless, the mead is ditch-water, it cannot fire the blood, nor tingle to the brain. In course of time chivalry brought the Troubadour, a more courtly and splendid personage than his predecessor, who knew another god than Odin, believed in quite a different Valhalla, and relished softer pleasures than drinking ale out of the skulls of departed warriors. Some of these men were soldiers as well as minstrels, and were cunning with the sword as with the harp-string. On the morning of Hastings, Taillefer asked and obtained permission from William to lead the onset. He sang in a loud voice the "Song of Roland" in the front of the Norman army, then striking spurs into his horse, he rode forward still singing, and dashed his life out in an ecstasy on the Saxon spears. After the Conquest, the English kings were great patrons of poets and minstrels, and some of them were no mean brethren of the craft, and could touch the harp themselves. Richard I. was an accomplished musician, and composed verses. The story how one of the king's minstrels, Blondell by name, rescued his master from captivity is familiar to most readers. It was known in England that Richard had returned from Palestine, but no one could tell in what country he was detained. Blondell travelled through many lands in search of the king, till his wanderings led him one day to a strong castle. On inquiry he learned that the fortress belonged to the Duke of Austria, and that it contained a single prisoner; but no one could tell him his name. The minstrel took up his place beneath one of the grated windows, and began to sing a song in French, which he and the king had at one time composed together. Richard started when the familiar tones fell upon his ear, and recognised Blondell's voice. He immediately took up the strain, and sang the remaining half. By that token Blondell knew it was the king; and returning to England discovered to the barons where their master was imprisoned. In the reign of Richard II. a court of minstrels was established, which obtained a charter, had power to enact laws, and every year elected a king to preside over them. By the time of Elizabeth the craft had fallen into disrepute, the minstrel was *profanely* classed with "rogues, vagabonds, and sturdy beggars," and

seems to have been better acquainted with the staff of the constable, than with the tables of the rich or the favour of princes. Although more emphatically the home of minstrelsy than England, we have but little information relative to the worldly prosperity of the minstrels in Scotland. Celtic bards, we know, frequently left their mountains and wandered through the Lowlands singing their wild songs, and the inhabitants of the Borders were passionately fond of listening to strains in which the struggles of clans and the forays into England were celebrated. Some provision appears to have been made for poets or musicians among the Celtic tribes; a piper seems to have been as indispensable to a highland chieftain as a claymore or eagle's feather; and a portion of the land of the tribe, called the "piper's croft," was set apart for the support of that important individual. In the Lowlands the poets seem to have found few royal favours. Dunbar and Sir David Lindsay resided at court, and although the first was sometimes attached to the train of a noble when he visited France on an embassy of state, and the second was honoured by bearing a young prince on his back, he meanwhile romping about on all-fours, they do not seem to have lived in the most flourishing condition. A considerable portion of their poetry is of the begging-letter species. If wit and eloquence had had power to charm coin from the pocket of the king, theirs had been better supplied. It is to be hoped that the poets were the most troublesome duns of the Jameses, else the unfortunate monarchs must have frequently been at the ends of their royal wits. It is hardly to be expected, however, that a line of kings, of lineage unexceptionable and most irreproachable blood, some of whom were occasionally hard-pushed in the matter of silk stockings, could afford to be generous to singing men and singing women, to poets, jesters, and buffoons.

But it was not from the court poets that the ballads sprung. They grew up over the country like wildflowers. Their authors were most probably part minstrels, part gaberlunzies, who wandered about the kingdom, dwelling often "under the canopy with the choughs and crows," haunting fairs, markets, and all assemblies of people, and when fortunate enough to procure a supper and a couch

of straw, paying their lawing with a song, and then forward on the morrow; and often, doubtless, we should find the minstrel equipped in the steel jacket of the moss-trooper, urging a drove of floundering and terrified cattle before him from Cumberland on a moonless night, with many a prick of lance and a great superfluity of curses. Many of the border ballads are so real and life-like, so full of character and humour, that we feel the singer had himself wielded a sword in the combat, or ridden into England to lift a prey. The form of this kind of poetry is of course necessitated by the circumstances of the minstrel and his audience. They were meant to be sung on public occasions to the harp or some other musical instrument, and in order to produce effect and sustain interest, some exploit must be the theme which flashed out far above common raid and the skirmish of rival clans—some surpassing tragedy which steeped a whole country-side in tears. The story claimed, too, to be told in the most direct and natural manner, and the lighter poetic graces—ornaments and efflorescences, precious and delightful enough in a calmer hour—were scared away by the fury of the minstrel's hand and voice. These compositions—and some of them are very ancient—were not, till a comparatively recent period, preserved by printing; living, therefore, on the lips and in the memories of several generations, and sung extensively over a country where, even at the present day, every twenty or thirty miles you come upon a dialect locally peculiar, it is not surprising that in process of time they underwent considerable modifications; that we frequently find half-a-dozen versions of the same story, and several stanzas of one ballad imbedded in the very heart of another. When a minstrel met a brother of the craft, they would in all probability exhibit their stock in trade, and both thereby acquire fresh materials. The meeting over, and reciting his novelties in distant parts of the country, if memory failed, the singer who could not afford to pause in his strain would hardly hesitate to thrust into the hiatus any set of stanzas which, without outrage to the proprieties of the story, carried along with it the feelings of his audience. In these compositions there are great similarities of incident and feeling. One thing at least never fails the reader; when two lovers die

they are of course buried together, and out of the grave of one there springs a rose, and out of the grave of the other a briar; which rapidly growing, contrive as a sort of poetical justice and compensation for their cruel fate, to interlace and marry their branches above the spire of the church—a spectacle which, however it might astonish people now-a-days, seems to have had the most touching associations for the grim moss-trooper and the lawless reiver of the marches. None of these ballads can be looked upon as the work of a single author. Their present form is the work of generations. For centuries the floating legendary material was reshaped, added to and altered, by the changing spirit and emotion of man. Rude and formless, they are touching and venerable as some ruin on the waste, the names of whose builders are unknown; whose towers and walls, although not erected in accordance with the lights of modern architecture, affect the spirit, and fire the imagination far more than nobler and more recent piles; for its chambers, now roofless to the day, were ages ago tenanted by life and death, joy and sorrow, for its walls have been worn and rounded by time, its stones channelled and fretted by the fierce tears of winter rains; on broken arch and battlement every April for centuries has kindled a light of desert flowers, and it stands muffled in ivy, bearded with moss, and stained with lichens, crimson, golden and green, by the suns of forgotten summers. We are told to imitate this, but who can recal the strong arms and rude hearts that piled huge stone on stone? Who can simulate the hallowing of time? Who can create us a ruin *to-day* with the weather-wear and lichens of five centuries upon it?

The Scottish Ballads may be divided into two classes. 1. Those poems founded on historical events, private tragedies, and the fairy mythology. 2. Those which more specially pertain to the Borders, and relate the sturt and strife, the wild revenges, the exploits, skirmishes, and cattle-lifting expeditions of the marchmen. The first contains much of the finest poetry, and the deepest pathos. Those of the second attend closely to the business in hand, are rude and bustling, and are frequently enlivened by flashes of savage humour. In every stanza you seem to hear the clatter of

hoofs, and the rattle of steel jackets. Both are valuable, as throwing light on a condition of man which can never recur in these islands; as exhibiting in a mighty mirror, pictures of a strong, passionate, turbulent time. Nowhere is the reader more impressed, not even on the page of Shakspeare himself, with the reality of the scenes and the men and women. Yet with all this naturalness, it is difficult for the reader of to-day, with his complex environments and difference of training, to imagine himself so actuated, so subdued by fears, so stormed along by passion. In reading these compositions, we see what we have gained and lost in the course of a few centuries, what new elements have entered into human life, what more of awfulness or frivolity, of truth or falsehood; we discover the old sea-margins of right and wrong, and compare with them the point the tide reaches to-day. All that far-off, lawless, and generous life is unroofed to us in these Ballads; we wander amongst the relics of a past society as we would amongst the ruins of Pompeii. We see the domestic economy of the houses of our ancestors; everything is left there for our inspection. We can take up a household implement and examine its material and shape. The first thing which strikes the reader of the Ballads is their direct and impulsive life. There is nothing cloaked or concealed. You look through the iron corslet of the marauder, and see the fierce heart heave beneath. None of the heroes ever seems to feel that hesitancy and palsy of action which arises from the clash of complex and opposing motives. At once the mailed hand executes the impulse of the hot heart. There seem to have been no dissimulators in those days. If a man is a scoundrel, he speaks and acts as if he were perfectly aware of the fact, and aware, too, that the whole world knew it as well as himself. If a man is wronged by another, he runs him through the body with his sword, or cleaves him to the chin with his pole-axe, and then flees, pursued day and night, awake and asleep, in town and wilderness, by a bloody ghost. If two lovers meet in the greenwood, they forget church and holy priest, and in course of time the heron is startled from his solitary haunt, and shame and despair are at rest beneath the long weeds of the pool, and a ghost with

dripping hair glides into the chamber, and with hand of ice awakes the horrified betrayer from his first sleep on his bridal night. And these men had their rude reverences and devotions, terrors of the solitary mountain-top and the moonless waste, wandering fires of the morass, spirits of the swollen stream: Edom o' Gordon, who burned a mother and her children in their own tower with laughter and mockery as if agony were a jest, would ere night mutter an Ave to Mary Mother, and cross himself as devoutly as ever a saint in the calendar; and the moss-trooper who could impale an infant on his spear point, would shiver at an omen which a schoolboy laughs at. These people were not afflicted with the maladies of hair-splitting and nice distinctions. A character like Hamlet's, where doubt balances resolve, and thought action, was impossible in these straight-forward days; perhaps quite as well for Hamlet. Before he could have made up his mind how to act under the circumstances, the sweep of a sword-blade would have solved that, and every other problem, for him for ever. Public opinion had not come into their world to make men walk gingerly as if upon knives, to add hypocrisy to vice, to rub the fine bloom off goodness, and to make a *faux pas* worse than a crime. The wild eyes of passion, on whatever message she is bent, whether to kill or save, are seldom turned in the direction of the Decalogue. The full heart is its own law, its fluctuations its only creed, and describing these men and women, singing their tragedies, the ballad-monger frequently, in utter innocence and unconsciousness, and in words simple as the babble of childhood, goes to the inmost core of the matter like the inevitable arrow of a William Tell, and the tears are on our cheeks before we are aware. This is an art which the world has lost, and which cannot be recovered until centuries are cancelled, and knights are again pricking through the greenwood, ladies sitting among the roses of their bower-windows, and minstrels wandering through the country harp in hand. Society is migratory, settling age after age in different districts, with changing abodes and occupations; and wherever she dwells, whether in the hut of the trapper, or in the glittering capitals of civilization, Poetry must attend, and take delight in representing the life which lies around the loghouse or the palace.

The literary merit of many of these Ballads is great; in the majority, the singer is in utter abeyance, and the subject is all in all. There is no straining and effort, no artifices are employed to fillip the dulled spirit of the reader; no impertinent ornaments distract the attention from the agony or the woe. Their authors were not literary men, and there was no existing literature by which their efforts were measured. Originality was not expected of them, and they were consequently never tempted to call grass *purple*, to avoid the imputation of plagiarism, some former writer having called it *green*. There were no critics to show up their failings and shortcomings, or to parade their good things—perhaps a line and a half in length—in italics, as the manner of some is. It may fairly be doubted whether the present time is favourable to the production of poetry of a high class; not, as is commonly supposed, that there is anything necessarily unpoetical in the artificial state of society, in the eternal struggle and roar of labour, in the shifting of the points of interest from green fields and meadows, and the sweet goings on of pastoral life, to the joys, crimes, and tragedies of men congregated in thousands beneath the smoke of mighty towns, but mainly from the greatness of existing literature, the prevalence of criticism, and its immediate application to literary productions. In 1824 we find Goethe expressing himself in the following terms to Eckermann:—"And how could one get courage only to put pen to paper, if one were conscious in an earnest appreciating spirit, that such unfathomable and unattainable excellencies (as Shakspeare's writings) were already in existence! . . . . It fared better with me fifty years ago in my own dear Germany. I could soon come to an end with all that then existed; it could not long awe me or occupy my attention. I soon left behind me German literature and the study of it, and turned my thoughts to life and to production. So on and on I went in my own natural development, and on and on I fashioned the productions of epoch after epoch. And at every step of life and development my standard of excellence was not much higher than what at such step I was able to attain. But had I been born an Englishman, and had all those numerous masterpieces been brought before me, in all

their power at my first dawn of youthful consciousness, they would have overpowered me, and I should not have known what to do. I could not have gone on with such fresh light-heartedness, but should have had to bethink myself, and look about for a long time to find some new outlet." It is this seeking a "new outlet for one's self," which is the cause of nearly all the vices of contemporary literature—of poetry especially. On it may be charged the strain and glitter, the forced and perverse originality, and the extraordinary innovations in rhythm and measure of which so much is heard, both in the way of applause and condemnation. The primal emotions of humanity have been so fully sung in England during the last two hundred years, that a poet of the present period, unless he is swept away by the torrent of feeling, or is bold enough—which he is perfectly justified in being—to look upon every situation of life, whether expressed before or not, as merely poetic material, and to use it for his own purposes, colour it by his own mind, shape it by his own emotion,—is tempted, when he remembers in a former writer some consummate expression of an idea, indispensable to the sequence and stream of emotion, to diverge from the direct path, and to attest his originality by becoming unintelligible or unnatural. It is required of every builder that he should erect a house new and well-proportioned; it is *not* required that he should, with his own hands, have baked every brick employed in the edifice. The existing system of criticism, and the greatness and fulness of literature, are in many respects injurious to poetical writers. An author's first book is generally written *con amore* and for himself; critic and reader are forgotten in the heat and delight of the task; but after he has run the gauntlet of dailies, weeklies, monthlies, and quarterlies, he becomes more conscious and less single-hearted. He writes with one eye to his subject, and the other to what the reviewers will say of him. He is more careful of the expression than of the thought. He desires to dazzle and astonish. He is no longer an inspired singer uttering words of fire; he is a lapidary coldly polishing a gem. The condition of the modern author resembles that of the flying-fish; if it seeks the air to escape its water foes, pounce come the gulls upon it. If he writes quietly he is common-place,

if strikingly, he is a sky-rocket with a noisy rush to heaven, a brilliant burst and shower of falling splendours, and then utter darkness and oblivion. He must either be crazy or dull. Under which king, Bezonian, speak or die! Most men prefer the former. The ballad-writers living under different circumstances were of course untouched by these peculiar temptations, nor had they to face the spectres and questions which centuries of life and speculation have since started. They had simpler hearts and lived in simpler times. They sang to rude and uncultured men; their task was to touch their spirits and evoke their sympathies, and from their peculiar environments and training, they exhibit an artlessness and simplicity which becomes at times the very perfection of style, and which—whatever other merits modern singers may possess—cannot be expected to appear in anything like the same degree in an artificial and fastidious age. In pathos they are supreme. Nothing can be placed beside them. It is so direct and simple, and goes so to the heart. There is an element of helplessness in it which is overpowering. It is piteous as the complaint of a little child.

Sir Philip Sidney said long ago that the ballad of Chevy-Chase, although "sung but by some blinde crowder," stirred his blood "more than a trumpet." The publication of Bishop Percy's "Reliques," at the close of the last century, was the salvation of English poetry. The world was weary of the museums of Darwin and Hayley, with their wax figures arrayed in dresses stiff with embroidery and gold;—pretty enough to look on as curiosities in their gorgeous apparel, but with never a flash in their glassy eyes, never a throb beneath their costly clothes. In the "Reliques" had returned tenderness, and nature, and passion. The voices of men and women were again heard in gladness and grief, the globed dews were lying thick on the purple moors, the wind was blowing strong and fresh, curling the faces of the streams, and bringing odours from the forests. The rivers of poetry had been frozen up, but the spring had come and loosened their icy chains, and they flowed forth again exulting and abounding.

Coleridge has praised the "grand old ballad of Sir Patrick

Spens." Being familiar to most readers, it need not now be quoted at length. Passing, however, such graphic touches of description as—

I saw the new moon late yestreen,
Wi' the auld moon in her arm;

or—

He hadna sailed a league, a league,
A league, but barely three;
When the lift grew dark, and the wind blew loud,
And gurly grew the sea,

attention may be drawn to its magnificent close—

O lang, lang may the ladyes sit
Wi' their fans into their hand;
Before they see Sir Patrick Spens,
Come sailing to the strand.

And lang, lang may the maidens sit
Wi' their gowd kames in their hair;
A waiting for their ain dear loves,
For them they'l see nae mair.

O forty miles off Aberdour,
'Tis fifty fathom deep;
And there lies gude Sir Patrick Spens,
Wi' the Scots lords at his feet.

Whoever he was, the nameless and forgotten author of this old song was a poet, and a great one too.

The ballad of Fair Helen is well known, and the story is simple. Helen, a lady of great beauty, had two lovers, one of whom was preferred, but their passion being displeasing to her family, they were obliged to meet in secret. During one of these interviews the discarded suitor appeared on the opposite bank of the stream, and in a fit of jealous rage, levelled his carabine at his rival. Helen sprang before her lover to shield him and received the bullet. The following song is supposed to be sung by the bereaved man over her grave:—

I wish I were where Helen lies,
Night and day on me she cries;
O that I were where Helen lies,
On fair Kirkconnell Lee!

Curst be the heart that thought the thought,
And curst the hand that fired the shot,
When in my arms burd Helen dropt,
And died to succour me!

O think na ye my heart was sair
When my love dropt doun and spak nae mair!
Then did she swoon wi' meikle care
On fair Kirkconnell Lee.

As I went doun the water side,
None but my foe to be my guide,
None but my foe to be my guide
On fair Kirkconnell Lee:

I lighted doun my sword to draw,
I hacked him in pieces sma',
I hacked him in pieces sma',
For her sake that died for me.

I wish my grave were growing green,
A winding sheet drawn ower my een,
And I in Helen's arms lying
On fair Kirkconnell Lee.

The reader will note the curiously intermingled ferocity and pathos of these verses; the lament with which they open; the grim satisfaction with which he recounts his progress down the river, his foe being his "guide," repeated as if *that* gave an additional zest and flavour to his revenge; the terrible re-duplication,

I hacked him in pieces sma',
I hacked him in pieces sma';

in which he lingers over, and is loath to leave the savage sweetness of the memory, killing him again and again in imagination. That done, he is weak as tears,—how desolate and hopeless is the music,

I wish my grave were growing green,
A winding sheet drawn ower my een.

His vengeance is sated. The fiery thirst which kept him alive, and all too eager for sleep, is abundantly slaked. There is nothing now to live for on earth. Blind him, there-

fore, with a winding-sheet, shut out the world from him with its peaceful folds, and lay him side by side with Helen in the grave.

A dreadful scene is described in the ballad entitled, "Edom o' Gordon." This marauder clatters up to the house of Rodes with a band of ruffians at his heels, and in the absence of the lord, demands that the lady should deliver up to him the keys of the castle. She refuses, and the freebooter orders the house to be burned. The poor mother is standing at one of the windows with her children, girt with climbing and quivering fires, and rolled in volumes of choking smoke, and reproaches one of her servants whom she discovers busy among the yelling fiends outside.

Wae worth, wae worth ye, Jock my-man,
I paid ye weel your fee;
Why pu' ye out the ground-wa stane
Lets in the reek to me?

And ein wae worth ye, Jock, my man,
I paid ye weel your hire;
Why pu' ye out the ground-wa stane
To me lets in the fire?

Ye paid me weel, my hire ladỳ,
Ye paid me weel my fee,
But now I'm Edom o' Gordon's man
Maun either do or dee.

O then bespaik her little son,
Sate on the nurse's knee:
Says, "Mither dear, gi' ower this house
For the reek it smithers me."

"I wad gie a' my gowd, my child,
Sae wald I a' my fee,
For ane blast o' the western wind
To blaw the reek from thee."

O, than bespaik her dochter dear,
She was baith jimp and sma',
"O, row me in a pair o' sheets
And tow me ower the wa'."

They rowed her in a pair o' sheets,
  They tow'd her ower the wa';
But on the point o' Gordon's spear
  She got a deadly fa'.

O bonnie bonnie was her mouth,
  And cherry were her cheeks;
And clear clear was her yellow hair,
  From which the red bluid dreeps.

Then wi' his spear he turned her ower,
  O gin her face was wan!
He said, "Ye are the first that eir
  I wished alive again."

He turned her ower and ower again,
  O gin her skin was white!
"I might hae spared that bonnie face
  To hae been some man's delight.

"Busk and boun my merry men a',
  For ill dooms I do guess;
I canna luik on that bonnie face
  As it lies on the grass."

The writer of "Edom o' Gordon" had no theories of art. He uttered only what he saw and felt; but what words could add to that picture of the burning tower, the unutterable sigh of the mother for "ane blast o' the western wind," and the mute reproach of the face on the grass, more terrible to the marauder than the gleam of hostile spears.

There is an expression of misery in these Ballads which appears frequently in Scottish song, and is in some degree peculiar to the compositions of the nation. It is a ghost which rises out of the ashes of passion; the despair of that love,—caused by stroke of death or heartlessness of man,—which knew neither pride of birth, nor riches, nor shame, nor death, which was conscious only of itself, blind to everything save its own rapture and its own joy; a mental state, not grief, not pain, but rather a dull stupor of misery, which would welcome sharp pain itself as a relief from its own bewilderment, which turns passionately to death, and hugs oblivion like a lover. The heart has crowded all on one throw of the dice:

that lost, the forgetfulness of the grave, and a quiet coverlet of waving grass is all that even Hope desires.

In 1529, James V. made an expedition to the borders, and executed many of the freebooters. One of those who suffered was Cockburn of Henderland. He was hanged by command of the king over the gateway of his own tower. The following verses seem to have been composed by his wife:—

He slew my knight to me sae dear,
He slew my knight and poin'd his gear:
My servants all for life did flee,
And left me in extremitie.

I sewed his sheet, making my mane:
I watched the corpse myself alane;
I watched his body night and day,
No living creature came that way.

I took his body on my back,
And whiles I gaed and whiles I sat;
I digg'd a grave and laid him in,
And happed[1] him with the sod so green.

But think na ye my heart was sair,
When I laid the moul' on his yellow hair;
O think na ye my heart was wae,
When I turned about away to gae.

Does the reader remember anything half so touching as that woman's lonely vigil by the dead, in a solitude where no creature came, or her progress to some secret place, carrying the body of her lord, sitting down weary with the burden, and then up and struggling on again? There is in the verses no tumult, no complaint, no wild wringing of sorrowful hands, no frenzied appeal to the pitiless heaven that saw the deed

[1] Can the English reader catch the strange tenderness and pathos of the word *happed?* It is one of the dearest to a Scottish ear, recalling infancy and the thousand instances of the love of a mother's heart, and the unwearied care of a mother's hand. The red-breast *happed* the dead bodies of the Babes in the Wood with leaves. Happed is the nursery word in Scotland, expressing the care with which the bed-clothes are laid upon the little forms, and carefully tucked in about the round sleeping cheeks. What an expression it gives in the verses quoted above to the burden and agony of fondness, all wasted and lavished on unheeding clay!

and made no sign. A broken heart indulges in neither trope nor metaphor; the language is simple as a child's, the circumstances are related without any passion or excitement. All lesser feelings are lost and swallowed up in utter desolation and woe.

There is an old song, published by Dr. Percy in his Reliques, which illustrates the hopeless pathos to which allusion has been made. The circumstances of the tragedy are unknown. All that has come down to us is the following strain of mournful music:—

O waly waly up the bank,
And waly waly down the brae,
And waly waly yon burn side,
Where I and my love wer wont to gae.
I leant my back unto an aik,
I thought it was a trusty tree,
But first it bowed and syne it brak,
Sae my true love did lechtly me.

O waly waly gin love be bonny
A little time while it is new;
But when it's auld it waxeth cauld,
And fades away like morning dew.
O wherefore should I busk my head?
Or wherefore should I kame my hair?
For my true love has me forsook,
And says he'll never lo'e me mair.

Now Arthur-Seat shall be my bed,
The sheets shall ne'er be fyled by me;
Saint Anton's well sall be my drink,
Since my true love has forsaken me.
Marti'mas wind, when wilt thou blaw,
And shake the green leaves aff the tree?
O gentle death! when wilt thou cum,
For of my life I am wearie.

'Tis not the frost that freezes fell,
Nor blawing snaw's inclemencie:
'Tis not sic cauld that makes me cry,
But my love's heart grown cauld to me.
When we came in by Glasgowe town,
We were a comely sight to see,
My love was cled in black velvet,
And I mysell in cramasie.

But had I wist before I kist,
That love had been sae ill to win,
I had lockt my heart in a case o' gowd
And pinned it with a siller pin.
And oh! if my young babe were born,
And set upon the nurse's knee,
And I mysell were dead and gane,
For a maid again Ise never be.

Burns in one of his letters quotes the following stanzas from an old ballad he had picked up among the country people. It breathes the same hopeless misery as those already quoted, and pines like them for the rest of the grave:—

O that my father had ne'er on me smiled!
O that my mother had ne'er to me sung!
O that my cradle had never been rocked!
But that I had died when I was young.

O that the grave it were my bed!
My blankets were my winding sheet!
The clocks and the worms my bed fellows a',
And, O, sae sound as I should sleep.

"What a sigh was there!" Burns adds; "I do not remember, in all my reading, to have met with anything more truly the language of misery than the exclamation in the last line. Misery is like love; to speak its language truly the author must have felt it."

The Ballads relating to sprites, fairies, and other supernatural creatures, are not many in number, but are mostly of great poetic beauty. From these compositions we gain considerable information regarding the spiritual agents in which the mounted robber of the marches believed, and at the mention of whose name, or at his approach to the district in which they were supposed to reside, he piously crossed himself, and murmured a prayer to Mary Mother. Perhaps, owing to the desolate aspect of the scenery, and the sterner character of the people, the superstitions of Scotland are of a more terrific nature than those of the sister kingdom. The Scotch have no Puck or Robin Goodfellow. The taciturn Brownie who sets the house to rights, who threshes as much corn in a single night as six husbandmen could accom-

plish in a summer day, and forsakes the family when he is insulted by any offer of gift or reward, is the most kindly disposed to human beings. The greater proportion, however, of the creatures of popular superstition are of an uncanny and vindictive disposition. There is the restless Will o' the Wisp, who betrays the traveller into the treacherous bog and deep morass; the Water Kelpie, who haunts at midnight the fords of swollen streams, and raises shrieks of eldritch laughter, when horse and man are swept away by the current. And there are the Fairies, whose mossy rings are still to be seen on the hill side, and when the peasant is overtaken on the lonely moor by these phantom riders in chase of a phantom stag, although he sees nothing, a sound of horns and dogs sweeps past him on the wind; and on Hallow-mass eve, when they ride forth in courtly and measured procession, dim shapes are visible in the moonbeam, and he hears the trampling of innumerable tiny hoofs, and the music of their bridle bells. The Fairies are a kidnapping people, and have acquired great dexterity in their art. They carry off young children, and leave a peevish and misshapen elf in its place; and persons of maturer age, if they happen to sleep within the rings after sunset, are pretty certain to awake in Fairyland. Many a child who wandered out to gather berries in the wood, and who was sought in the evening with tears and a broken heart, and so the next day and the next, is now a happy page to the Fairy Queen. Many a man who never returned from his distant journey, and for whose soul mass has been sung and prayers offered, and whose wife, who thought she never could have forgotten him, sleeps in the bosom of another husband, is at this moment stretched in one of the sweet-smelling valleys, and basking in the everlasting sunshine of that Land of Dream, wondering, perhaps, what his old companions are about on the earth, and if they ever think of him now. Seek not to return, O lost one! However unpleasant to believe, the world wags just as comfortably as when you were one of its denizens. The chair you sat upon is filled. The heart that loved you once, has changed its allegiance and loves another quite as fondly and devotedly. The guests have sat down, every seat is occupied; there is no room for you at the feast. When one of these

lost ones wishes to return to earth he informs some friend by dream that he has been carried away by the "good people," and points out the method in which his release can be accomplished. The friend thus commissioned takes his station on Hallow-mass eve on the highway along which the Fairies are to pass. Soon the cavalcade is heard approaching. He stands forward and seizes a rider by the mantle, and claims him by name. After some altercation and fierce struggles, the procession sweeps on with murmurs of discontent; a hurried trample of innumerable hoofs and clash of angry bells, and *two* human beings are standing on the midnight road. In the ballad of "Young Tamlane," we are told how a lady rescued her lover in this manner from the Fairies, and we are also admitted behind the scenes and learn *why* the "good people" have a *penchant* for the children of human parents. Elf-land, it seems, like every other land, has its secret history and its own annoyances. It appears, then, that the land of Fairy must pay tribute to Hell once every seven years, that tribute being its fattest inhabitant. The Fairies naturally prefer handing over to the tender mercies of the Fiend one of the human mortals whom they have ensnared rather than one of their own race. Young Tamlane is unhappily inclined to obesity; in fact he is the Jack Falstaff of Fairy Land; and as the seven years are nearly expired, and the time draws near when Hell must receive its due, his sleek and well-to-do condition throws him into a state of considerable trepidation. He therefore appears to his lady-love and tells her that he enjoys exceedingly the pleasure of Elf-land; indeed, he would not think of changing his residence but for the weighty considerations already mentioned, which he describes with considerable *naïveté* and pathos:—

Then I would never tire, Janet,
In Elfish land to dwell,
But aye, at every seven years,
The pay the teind to hell;
And I am sae fat and fair of flesh,
I fear 'twill be mysell.

He adds that that evening is Halloween, the evening when the Fairies would ride abroad, and that if she would save him,

she must act to-night or never. She asks how she should recognize him among the passing troops of ghostly knights and unearthly cavaliers. He replies :—

The first company that passes by,
Say na, and let them gae ;
The next company that passes by,
Sae na, and do right sae ;
The third company that passes by,
Then I'll be ane o' thae.

First let pass the black, Janet,
And syne let pass the brown ;
But grip ye to the milk-white steed,
And pu' the rider down.

For I ride on the milk-white steed,
And aye nearest the toun ;
Because I was a christened knight,
They gave me that renown.

My right hand will be gloved, Janet,
My left hand will be bare ;
And these the tokens I gie thee,
Nae doubt I will be there.

They'll turn me in your arms, Janet,
An adder and a snake ;
But haud me fast, let me not pass,
Gin ye wad buy me maik.

They'll turn me in your arms, Janet,
An adder and an ask ;
They'll turn me in your arms, Janet,
A bale that burns fast.

They'll turn me in your arms, Janet,
A red-hot gad o' airn ;
But haud me fast, let me not pass,
For I'll do you no harm.

They'll shape me in your arms, Janet,
A tod, but, and an eel ;
But haud me fast, nor let me gang,
As you do love me weel.

They'll shape me in your arms, Janet,
A dove, but, and a swan,
And last they'll shape me in your arms
A mother-naked man:
Cast your green mantle over me,
I'll be myself again.

Janet takes her station at the Miles Cross, pulled down the rider on the milk-white steed, and held her lover fast through all his changing shapes. After her green mantle was thrown over him, the wrathful voice of the Fairy Queen was heard—

Up then spake the Queen of Fairies,
Out o' a bush o' rye,
"She's taen awa the bonniest knight
In a' my companie.

"But had I kenned Tamlane," she says,
"I lady had borrowed thee—
I wad taen out thy twa grey een,
Put in twa een o' tree.

"Had I but kenned Tamlane," she says,
"Before ye cam frae hame—
I wad taen out your heart o' flesh
Put in a heart o' stane.

"Had I but had the wit yestreen,
That I hae coft the day—
I paid my kane seven times to Hell,
Ere you'd been won away."

But the most famous earthly inhabitant of Fairy-land was Thomas Learmont of Erceldoune, better known by his traditionary name of Thomas the Rhymer, poet, prophet, and the beloved of the Queen of Elf-land, who alone of mortal men dared to kiss her lips, and whose grey tower nods over the Leader, still regarded with superstitious awe by the natives of that district. This apparition True Thomas saw as he lay stretched on the Huntly Bank on a summer's day:—

True Thomas lay on the Huntlie Bank;
A ferlie he spied wi' his ee:
And there he saw a ladye bright,
Come riding doun by the Eildon tree.

Her shirt was o' the grass green silk,
  Her mantle o' the velvet fyne:
At ilka tett of her horse's mane,
  Hung fifty siller bells and nine.

True Thomas he pulled aff his cap,
  And louted low doun to his knee,
"All hail thou mighty Queen of Heaven!
  For thy peer on earth I never did see."

"O no, O no, Thomas," she said,
  "That name does not belong to me;
I am but the Queen of fair Elf-land,
  That am hither come to visit thee.

"Harp and carp, Thomas," she said,
  "Harp and carp along wi' me;
And if ye dare to kiss my lips,
  Sure of your bodie I will be."

"Betide me weal, betide me woe,
  That weird shall never daunton me."
Syne he has kissed her rosy lips,
  All underneath the Eildon tree.

From that day for seven years Thomas was seen no more among men. After that period he returned and scattered abroad prophecies of days of dool and woe to Scotland, when the fields should be harvestless, and the hare bring forth her young on the hearth-stone of the castle; of storms raging from sea to sea, of disastrous battle-fields, of the strange overflow of rivers, and the final union of the crowns. When he left Elf-land, he was bound to return at the pleasure of its Queen. One day Thomas was feasting in his own tower, when a messenger burst into the apartment, and told that a doe and fawn of wonderful beauty were pacing, without fear, and silently as a dream, the streets of the little village. Thomas knew the signal, and immediately arose and followed the creatures into the forest, and was never again seen on earth. Had the Queen pined for her favourite? To what glory was he marshalled? To what weird to dree? His countrymen for centuries believed that he was still alive in Fairy-land, and looked for his return.

The district of country which produced the Border Ballads—stretching from the cataract of the Grey Mare's Tail, along the green valley of the Yarrow, onward to where the castle-keep of Norham blackens against the sinking sun, embracing amongst other streams, the Tweed, and the waters of the Teviot and the Ettrick—is, although somewhat limited in extent, by far the most interesting in Scotland. It is a region for the most part pastoral, with round swelling hills of no great altitude, and valleys through which waters run whose names are familiar to every Scottish ear. The traveller passes in a day's journey over fifty battle-fields, some famous, some forgotten, descrying every few miles as he goes, on the hill-side or up the withdrawing glen, the grey peel of a border laird, roofless and open to the sky, the walls crowned with long withered grasses, which sigh in the passing wind, and half a dozen sheep feeding around its base, with bits of straggling brambles sticking in their wool; or perhaps, as the day draws to a close, the mightier ruin of the castle of some feudal lord looms upon him through the fast fading light. The whole district is full of associations. Every stream has its tradition, every glen is peopled by legends, every ruin is consecrated by a story of love or revenge. Genius has thrown an additional charm over the country. As you pace along the crystal mirror of St. Mary's Loch, or visit the farm-house of Altrive, you remember Hogg. The shade of Wordsworth wanders along the silver course of the Yarrow; and when the swollen Tweed raves as it sweeps, red and broad, round the ruins of Dryburgh, you think of him who rests there—the magician asleep in the lap of legends old, the sorcerer buried in the heart of the land he has made enchanted. This region, so peaceful now, quietly growing its harvests and fattening its flocks, was in the olden time one great theatre of strife and bloodshed. It was the battle-field of the Percy and the Douglas; and, to quote the old chronicle—

> There was never a time on the March partes,
> Sen the Douglas and the Percy met,
> But yt was marvell and the redde blude roune not
> As the rane does in the stret.

The Kers, Scotts, Armstrongs, and other border clans, dwelt

on the waters of the Ettrick, the Whitadder, and the Teviot, and preyed on England, Scotland, and on one another with great impartiality. Though the cloud of English war first burst on the Border, and midnight was reddened by flames from peel and farm-steading, and rendered hideous by the shouts of the plunderers and the lowing of cattle driven off with a tumult and rapidity utterly repugnant to their meditative and decorous mode of life;—though the Jameses, in moments of unusual vigour, suddenly appeared on the marches with an army, and left dozens of the robbers wavering in the wind over the gateways of their own towers, still Ishmael was untamed; in a week Cumberland was swept, or the flocks of the Lothian farmer driven off by the light of his burning house. Crushed and broken, the spirit of the borderer was never subdued; his hand was against every man, and every man's hand against him. 'Forgive your enemies' was never a part of his creed, and revenge, prompt and terrible, was elevated unto a chief place among the virtues. He never forgot an injury, and although the insult was given in hot youth, and years had elapsed, the avenger was silently upon the track, and in grey hairs blood was exacted for blood, and groan for groan. On one occasion, Sir Robert Ker, the Warden of the Scottish March, was murdered by three Englishmen, two of whom made their escape. After some time they began to appear in public, and one of them fixed his residence at a considerable distance from the Scottish border. On this becoming known, two servants of the murdered man's son passed into England during the night, slew him in his own house, and brought the head to their master in Edinburgh, who exposed it on a pole in one of the public streets, and left it there to wither in the sun like a gourd. In the reign of James V., Albany, then regent of the kingdom, thirsting for an opportunity to gratify his private revenge, invited Lord Home to a solemn council to be held on state affairs at Edinburgh. When the hapless chieftain arrived, he was seized, condemned on a charge of treason, and executed along with his brother. Before sailing for France, Albany appointed Sir Anthony Darcy, a French knight of great ability, to be Warden of the East March in his absence. This Frenchman was an object

of intense hatred to the whole clan, whose leader had been slain. On the occasion of a border riot, he encountered Sir David Home, who reproached him with the death of his chief. A scuffle ensued, and Darcy sought refuge in flight. He was pursued for miles; at last his horse sunk up to the haunches in a morass. His enemies coming up struck off his head, and Sir David Homè, shearing off his long flowing hair, plaited it into a wreath, and wore it as a trophy at his saddle-bow. From a passage in the Memoirs of Beaugué, a French officer who served in Scotland (quoted by Sir Walter Scott in his "Minstrelsy"), we learn the dreadful nature of the animosity which flamed between the English and the Marchmen. The Castle of Fairnihirst being besieged by the Borderers, and reduced to extremities, the commandant crept through the breach made in the wall, and surrendered himself to a French officer. A Borderer immediately stept forward, and at one blow struck the Englishman's head four paces from his trunk. A hundred Scots rushed forward to wash their hands in his blood. After the Scots had slain all their own prisoners, they bought up those of the French, and their hatred may be imagined, when it is not mentioned, that in a single instance they attempted to cheapen the price. Beaugué mentions that he himself sold a prisoner for a small horse to a Scot, who doubtless conceived that he had secured the luxury of killing an Englishman in the manner after his own heart at a decided bargain. There are some anecdotes preserved of Walter Scott of Harden, which give a curious enough peep into the domestic manners of a border chief. Harden married the Flower of Yarrow, who bore him six stalwart sons, and it sometimes happened, when the giants strode in to dinner with appalling appetites, whetted by the chase and the mountain breeze, they found, on uncovering the dishes, a pair of clean spurs in each, placed there by the fair hands of the Flower herself. That night an English farmer would mourn over empty stalls. A prompt grim old man was the Laird of Harden,—no danger of his armour rusting, or grass growing beneath his horse's hoofs. On one occasion his youngest son was slain in a fray with the Scotts of Gilmanscleugh, but the

old warrior had no tears to shed over his youngest born. The flower of Yarrow might throw herself on the body of her dead son in clamorous grief. That was what women were fitter for. He had other work to do. His sons flew to arms, and were eager for revenge. Harden quietly locked them up in their own tower and put the keys in his pocket, letting their fierce hearts fret themselves out there. He then mounted his horse and rode to Edinburgh, where he proclaimed the crime, and gained from the Crown the gift of his enemies' lands. He rode back as rapidly as he had come, the charter in his hands. Releasing his sons, he cried with a gleam in his grey eye, "To horse, lads, and let us take possession. The lands of Gilmanscleugh are well worth a dead son." Educated in the belief that plunder was the whole duty of man, and revenge the most exalted virtue, the borderer when brought to suffer, whether by royal authority or by the hands of an opposing clan, met his fate with an unfaltering heart. It was a misfortune of course to be hanged, a thing to be avoided if possible; but he could not feel that he was a criminal, and for him the gallows had no ignominy. He knew that his executioners merited the same fate as himself, and his last thought on earth was the comforting one, that in all probability they would meet it one of these days; consolation dashed next moment by the thought that he could not be there to see. Pity that! So a curse to his foes, to his friends the stern'st goodnight, and now ——. Yet these boisterous men had their virtues. They were possessed of a rude generosity, and would go through fire and water and dare captivity to save a friend. They were civilised enough to abhor wanton bloodshed, they were savage enough to hate, like death, all lying and deceit. When a prisoner was dismissed on parole, he transmitted his ransom, or failing, he returned into the hands of his captor. They sacredly observed their word, and a bargain sealed by a clash of their iron palms was inviolable as a usurer's bond. Deep down in their grim hearts dwelt tears and woman's tenderness, fountains which, if they seldom overflowed, never entirely dried up. One of the Armstrongs, before he was executed in Edinburgh for the murder of Sir John Carmichael, sang the following lament:—

This night is my departing night,
For here nae langer must I stay;
There's neither friend nor foe o' mine,
But wishes me away.

•

What I hae done thro' lack o' wit
I never never can recall,
I hope ye're a' my friends as yet,
Goodnight, and joy be with you all.

And a strain is put into the mouth of Lord Maxwell, on his leaving Scotland for France, a banished man, which suggested "Childe Harold's Goodnight;" but the Border lord's lament to "Dumfries, his proper place," "Carlaverock fair," surpasses in tenderness and pathos the modern poet singing as he gazed on England like a cloud on the horizon, the sun setting behind him in the splendid sea.

In the Border Ballads, this savage state of society, its strife and turmoil, its rude nobleness and generosity, is faithfully represented. We open their pages, and find ourselves in a new world. The Scotch moss-troopers have been across the Borders with the dawn, and are now pushing rapidly homeward with flocks of sheep and a hundred head of cattle. The alarm has spread for miles, and Cumberland is mounting in haste with spear and lance. Across barren waste and up steep ravine a bloodhound is already baying on the robbers' track. Men are posted on every ford on the Liddel; and afar on the Souter Moor, Will, stalwart Wat, and long Aicky are sitting, with a sleut-dog on the watch. We have fairly trapped the Scots to-day; and before nigh there will be many an empty saddle in their troop. Here is part of the rude song of one of the sufferers in the raid:—

"Sleep'ry Sim of the Lamb-hill,
And snoring Jock of Suport-mill,
Ye are baith right het and fou;
But my wae wakens na you.
Last night I saw a sorry sight—
Nought left me o' four-and-twenty guide ousen and ky,
My weel-ridden gelding and a white quey,

But a toom byre and a wide,
And the twelve nogs on ilka side.
Fy lads! shout a' a' a' a' a'
My gear's a' gane.

Weel may ye ken
Last night I was right scarce o' men;
But Toppet Hob o' the Mains had guestened in my house by chance.
I set him to wear the fore-door wi' a spear, while I kept the back-door wi' a lance;
But they hae run him thro' the thick o' the thie, and broke his knee-pan,
And the mergh o' his shin-bane has run down on his spur-leather whang;
He's lame while he lives and where're he may gang.
Fy lads! shout a' a' a' a' a'
My gear's a' gane."

Battle is an every day occurrence, and wounds and dislocations are matters of course. Tush, man, don't look so white, tie up the ugly thing with a napkin; it is your turn to-day, it may be mine to-morrow. Death, too, is always walking about on the Borders; even the little children have seen him, and know his face. The older troopers when they meet him give him good day, like a common acquaintance, and some of the more familiar stay for a moment to bandy a grim jest or two with him.

Ane gat a twist o' the craig,
Ane gat a punch o' the wame;
Symy Haw gat lamed of a leg,
And syne ran bellowing hame.
Hoot, hoot, the auld man's slain outright!
Lay him now wi' his face doun—he's a sorrowful sight.
Janet, thou donet,
I'll lay my best bonnet,
Thou gets a new gude-man afore it be night.

A fit place, truly, to jest about a new husband; the old one lying so still there, face downward, on the trampled grass.

In the ballad entitled "Jamie Telfer," we have a spirited description of a foray, and the subsequent pursuit and rescue of the prey. The Captain of Bewcastle had carried off Jamie's cattle, and the ruined man starts up,

"leaving a' greeting wife and bairnies three," and runs ten miles afoot over the new fallen snow to summon aid. He alarms peel after peel, and the awaked inmates hurry on jack, and grasp lance, and push on in hot haste to Branksome Ha', where Buccleuch dwelt in a sort of feudal state. "Wha brings the fraye to me?" cried the old lord as the riders clattered at his gates—

"It's I, Jamie Telfer o' the fair Dodhead,
And a harried man I think I be!
There's nought left in the fair Dodhead
But a greeting wife and bairnies three."

"Alack for wae!" quoth the gude auld lord,
"And ever my heart is wae for thee!
But fye, gar cry on Willie, my son,
To see that he come to me speedilie.

Gar warn the water braid and wide,
Gar warn it sune and hastilie;
They that winna ride for Telfer's kye,
Let them never look in the face o' me.

Warn Wat o' Harden and his sons,
Wi' them will Borthwick water ride;
Warn Gandilands and Allan-haugh,
And Gilmanscleugh and Commonside."

The Scotts they rade, the Scotts they ran,
Sae starkly and sae steadilie;
And aye the ower-word o' the thrang
Was—"Rise for Branksome readilie."

With their number augmented, they ride forward, and in a short time come in sight of the Captain of Bewcastle and his men driving the booty straight for England. As was to be expected, little time is wasted in words.

Then til't they gaed wi' heart and hand,
The blows fell thick as bickering hail;
And mony a horse ran masterless,
And mony a comely cheek was pale.

But Willie was stricken ower the head,
And thro' the knapscap the sword has gane,
And Harden grat for very rage,
When Willie on the grund lay slain.

But he's taen aff his gude steel cap,
And thrice he's waved it in the air;
The Dinlay snaw was ne'er mair white
Nor the lyart locks of Harden's hair.

"Revenge! revenge!" auld Wat gan cry:
"Fye, lads, lay on them cruellie,
We'll ne'er see Teviotside again,
Or Willie's death revenged shall be."

O many a horse ran masterless,
The splintered lances flew on hie;
But or they war to the Kershope ford,
The Scotts had gotten the victory.

Having now secured Jamie's cattle, the idea suggests itself to one of the party that they might improve the occasion by robbing the Captain's house.

There was a wild gallant among us a',
His name was Watty wi' the Wudspurs,
Cried—"On for his house in Stanegirthside,
If ony man will ride with us!"

When they cam to the Stanegirthside,
They dang wi' trees and burst the door,
They loosed out a' the Captain's kye,
And set them forth our lads before.

There was an auld wyfe ayont the fire,
A wee bit o' the Captain's kin,
"Whae dar loose out the Captain's kye,
Or answer to him and his men."

"It's I, Watty Wudspurs, loose the kye,
I winna layne my name frae thee!
And I will loose out the Captain's kye
In scorn of a' his men and he."

When they cam to the fair Dodhead,
They were a wellcum sight to see!
For instead of his ain ten milk kye,
Jamie Telfer has gotten thirty and three.

And he has paid the rescue shot,
Baith wi' goud and white monie;
And at the burial o' Willie Scott
I wat was mony a weeping ee.

But "Kinmont Willie" is the finest of all these Ballads; remarkable for the daring deed it celebrates, and the light and laughing scorn of danger which it exhibits. The moss-trooper encounters peril with as gay a heart as he opens a dance with a rustic beauty at a Border fair. Lord Scroope and Sheriff Salkelde have succeeded in capturing Kinmont Willie, a robber whose exploits were well known on the marches.

They band his legs beneath the steed,
They tied his hands behind his back;
They guarded him five-some on each side,
And they brought him ower the Liddel-rack.

They led him thro' the Liddel-rack,
And also thro' the Carlisle sands;
They brought him to Carlisle castel,
To be at my Lord Scroope's commands.

"My hands are tied, but my tongue is free,
And whae will dare this deed avow?
Or answer by the Border law?
Or answer to the bauld Buccleuch?"

"Now haud thy tongue, thou rank riever!
There's never a Scot shall set thee free;
Before ye cross my castle yate,
I trow ye shall take farewell o' me."

"Fear ye na that, my lord," quo' Willie;
"By the faith o' my body, Lord Scroope," he said,
"I never yet lodged in a hostelrie
But I paid my lawing before I gaed."

So while Willie lies in the central dungeon under a load

of clanking chains thinking on his sins, and the cheerless hours creep on that bring his death on Haribee, intelligence of the capture reaches Buccleuch in Branksome Hall. How the blood of the Border chieftain boils up—

He has ta'en the table wi' his hand,
He garr'd the red wine spring on hie;
"Now Christ's curse on my head," he said,
"But avenged of Lord Scroope I'll be.

"O is my basnet a widow's curtch?
Or my lance a wand o' the willow tree?
Or my arm a ladye's lilye hand,
That an English lord should lightly me?"

And have they ta'en him, Kinmont Willie,
Against the truce of Border tide?
And forgotten that the bauld Buccleuch
Is Keeper here on the Scottish side?

And have they taen him, Kinmont Willie,
Withouten either dread or fear?
And forgotten that the bauld Buccleuch
Can back a steed and shake a spear?

Kinmont is to be delivered, and the rescuing party is described. Note the characteristic touch of Border humour at the close. It is quite an exquisite jest to run a man through the body, and the want of appreciation of the joke on the part of the skewered makes it all the more delightful.

He has called him forty marchmen bauld,
Were kinsmen to the bauld Buccleuch;
With spur on heel, and splent on spauld,
And gleuves of green and feathers blue.

There were five and five before them a',
Wi' hunting-horns and bugles bright;
And five and five came wi' Buccleuch,
Like warden's men arrayed for fight.

And five and five, like a mason gang,
That carried the ladders lang and hie;
And five and five, like broken men,
And so they reached the Woodhouselee.

And as we crossed the Bateable land,
When to the English side we held,
The first o' men that we met wi',
Whae sould it be but the fause Sakelde?

"Where be ye gaun, ye hunters keen?"
Quo' fause Sakelde; "come tell to me?"
"We go to hunt an English stag
Has trespassed on the Scots countrie."

"Where be ye gaun, ye marshal men?"
Quo' fause Sakelde; "come tell me true?"
"We go to catch a rank reiver
Has broken faith wi' the bauld Buccleuch."

"Where are ye gaun, ye mason lads?"
Quo' fause Sakelde; "come tell to me?"
"We gang to harry a corbie's nest
That wons not far frae Woodhouselee."

"Where be ye gaun, ye broken men?"
Quo' fause Sakelde; "come tell to me?"
Now Dickie of Dryhope led that band,
And the nevir a word of lear had he.

"Why trespass ye on the English side?
Row-footed outlaws, stand!" quo' he.
The nevir a word had Dickie to say,
Sae he thrust the lance thro' his fause bodie.

Here is the rescue and conclusion:—

Wi' coulters and wi' forehammers,
We garred the bars bang merrilie,
Until we came to the inner prison,
Where Willie o' Kinmont he did lie.

And when we cam to the inner prison,
Where Willie o' Kinmont he did lie—
"O sleep ye, wake ye, Kinmont Willie,
Upon the day that thou's to die?"

"O I sleep saft, and I wake aft,
Its lang since sleeping was fleyed frae me!
Gie my service back to my wife and bairns,
And a' gude fellows that speir for me."

Then Red Rowan has hente him up,
The starkest man in Teviotdale—
"Abide, abide, now, Red Rowan,
Till of my Lord Scroope I take farewell.

"Farewell, farewell, my gude Lord Scroope,
My gude Lord Scroope, farewell," he cried;
"I'll pay you for my lodging maill,
When first we meet on the Border side."

Then shoulder high, with shout and cry,
We bore him down the ladder lang;
At every stride Red Rowan made,
I wot the Kinmont's airns played clang!

"O mony a time," quo' Kinmont Willie,
"I have ridden a horse baith wild and wood,
But a rougher beast than Red Rowan,
I ween my legs have ne'er bestrode."

"And mony a time," quo' Kinmont Willie,
"I've pricked a horse out once the furs;
But since the day I backed a steed,
I never wore sic cumbrous spurs."

We scarce had won the Staneshaw-bank,
When a' the Carlisle bells were rung,
And a thousand men on horse and foot
Cam wi' the keen Lord Scroope along.

Buccleuch has turn'd to Eden Water,
Even where it flowed frae bank to brim;
And he has plunged in wi' a' his band,
And safely swam them through the stream.

He turned him to the other side,
And at Lord Scroope his glove flung he—
"If ye like na my visit in merry England,
In fair Scotland come visit me."

All sore astonished stood Lord Scroope,
He stood as still as rock of stane;
He scarcely dared to trew his eyes,
When thro' the water they had gane.

"He's either himsell a devil frae hell,
Or else his mother a witch maun be;
I wadna hae ridden that wan water
For a' the gowd in Christentie."

So all those fierce spirits have stormed themselves out, and we learn the stories of their strifes and hatreds, their generosities and revenges, their burnings and plunderings, from the strains of a few wandering and forgotten minstrels. They were brave men, who did what work they had to do with promptitude and vigour, dandled children proudly enough on their knees, and when it came to that at last, they clashed down in harness, and death and pain got as few groans out of them as out of most. Times are changed now, however. Their sons have the same bold hearts and strong arms, but they are turned to other uses, and worn out in other tasks. The stream which of yore rushed wastefully from fount to sea, is banked and bridged, it turns the wheels of innumerable mills, carries on its bosom barge and stately ship, sweeps through mighty towns where thousands live and die beneath an ever-brooding canopy of smoke, and melts at last into peaceful ocean-rest a labourer grimed and worn; but its cradle is still, as of old, on the mountain top among the sacred splendours of the dawn, its companions the flying sunbeams and the troops of stars, its nurses the dews of heaven and the weeping clouds.

There are modern writers who conceive that man is only poetical when he clanks about in mail and swears by St. Bridget; when he inhabits an immense castle turreted and moated, with a background of savage pines, amongst which the winds make a great roaring of winter nights; who spends his forenoons amongst his dogs, or amuses himself with flying his falcon at the blue-legged heron that rises screaming from the weedy pool; and they are careful to inform the world that the Ballad is the most natural form of poetry, and ought to be the model of all future compositions. The wisdom of this seems very questionable. The most profitless work on this planet is the simulation of ancient ballads; to hold water in a sieve is the merest joke to it. A man may as well try to recal Yesterday, or to manufacture

tradition or antiquity, with the moss of ages on them. It has been attempted by men of the highest genius, but in no case with encouraging success. If ever a man was qualified for the task, it was Sir Walter Scott. No one lived more in the past than he. He was more familiar with the men of the middle ages than with the men who brushed past him in Princes Street; and yet, his efforts in the ballad form—beautiful and spirited poems they all are—are devoid of the homely garrulousness, the simple-heartedness, the carelessness and unconsciousness which give such a charm to the productions of the old minstrels. There is no modern attempt which could by any chance or possibility be mistaken for an original. You read the date upon it as legibly as upon the letter you received yesterday. However dexterous the workman, he is discovered—a word blabs, the turn of a phrase betrays him. Simplicity, which is seen at a glance to be affected, carelessness elaborately laboured, and modes of thought and expression which have no correspondence with the feelings or the language of living men, are not ornamental to any form of composition. Why should we go to steel-clad barons and rough-riding moss-troopers; is there not sufficient poetry in the life which environs us to-day? It is of course the merest truism, that in every age and under every disguise—beating beneath the mail of the Crusader or the vest of the English gentleman—the same human heart sorrows and rejoices, and that all poetry resides in *it*, and not in its encasement of Yorkshire broadcloth or Spanish steel; but it is astonishing how frequently a truism which has passed for generations among men like current coin, would startle them if they only took the trouble to examine it. The more generally a thing is supposed to be believed by mankind, the less real faith there is in it. Handle your truism, and it explodes beneath your unsuspecting nose like a bombshell. Carlyle utters the merest truisms, and what a strange sound that is;—there is again a prophet amongst men! Our ballad poetry is valuable,—for certain special merits of genuineness and nature second only to the Shakespearian drama—but why it should be chosen as a model, and sedulously imitated, is not altogether evident. Let genius have free range and scope; it has its own laws which it

must obey, and no others; and although ever new, its developments are ever beautiful and harmonious. Poetry has a value in right of its truth and beauty; it has also a value of an historical and illustrative nature; the first may decrease, and be less regarded from the changing habits and feelings of society; the second increases necessarily as the ages roll. Every bygone period of the world has reflected itself in its contemporary poetry. History storms on with siege and battle and political crisis, but Poetry runs alongside supplementing History, smoothing its austerities, filling up its chasms and interstices with music, catching up the life of the streets and the current talk and humours of men; chronicling the emotions, the desires that inflame, the fears and spectres that daunt the heart. The Ballads are full of the turbulent times which environed their authors. When we wish to know something of the fourteenth century, we derive our knowledge, not so much from formal history, as from Chaucer's picture of the pilgrims in the room at the Tabard, or his description of their ride to Canterbury on the following morning. Though so long ago, we can see the flutter of their dresses and hear them laughing yet. The reader of Pope values him not so much for his splendid antitheses and his glittering wit, but because in his pages he comes face to face with the century, breathes its very air, walks into its saloons, sits among beruffled and rapiered dandies and beauties with patches on their cheeks, hears all their delicious scandals, and the good things of the wits; and whether intentionally or unintentionally—perhaps all the better and completer that it is done without special purpose or design—the day which is now passing will be preserved for future men in its poetry. And while history shall repeat the names of Alma and Sebastopol, and the story of the silent Emperor across the water, Tennyson and the Brownings will open the doors of our houses, and readers may see the faces, hear the voices, and note, if they choose, the very furniture of the rooms, with the spaniel asleep on the rug, of the men who are living now.

A. S.

SIR WILLIAM HAMILTON.

SCOTLAND has recently lost in rapid succession three of her greatest men, Dr. Chalmers, Professor Wilson, and Sir William Hamilton, who during more than a quarter of a century have been respectively her foremost representatives in Theology, Literature, and Philosophy. Professors together for years in the same university, they had in common a breadth of nature, a strength and concentration of intellect, in a word, a harmony of mental power, that stamped the seal of a rare excellence on all they did, and carried their fame far beyond the scene of their personal labours. They were indeed the three men that an intelligent stranger visiting Edinburgh probably wished most of all to see, and they were precisely the three whose appearance would least disappoint his expectations. Dr. Chalmers, perhaps, at first sight might scarcely look equal to his fame, for in repose his countenance was certainly heavy and his eye dull; but the moment he opened his lips to give even the most ordinary greeting, or ask the most common-place question, a flash of genial light revealed the man; and if you found out his class-room at the temporary college in George Street, and spent an hour of the short winter afternoon on these dimly lighted and densely crowded benches, you would, in all likelihood, learn the true secret of his power, and be amply rewarded for the trouble. At first, indeed, the reading of the lecture would go on quietly enough, with nothing particular to remark except a certain glow of subdued fervour in the tone; but by and by, on coming to some point in the manuscript which suggested further expansion, or struck him as calling for special application, the

lecturer would pause in the reading, raise his head from the desk, and keeping his forefinger on the line to mark the place, begin his extempore comment with, "Here, gentlemen, I would just say"—speaking at first only in an animated conversational tone. Gradually, however, you perceived a change,—the sibilants came with greater force and frequency, the vowels were broadened, the strong consonants strengthened the emphatic syllables rendered more emphatic still, until at length kindling with the subject, as new views of its importance crowded thickly upon him—especially if it had a practical bearing, and touched at all upon the future fortunes of the church—his whole manner would undergo a rapid change; abandoning the manuscript altogether, he would suddenly rise from his chair, the professor's gown fluttering about him as he rose, and reaching over the desk with outstretched arm, flashing eye, and dilated form, burst into a strain of impassioned eloquence, of solemn warning, exhortation or entreaty, that thrilled through the hearer as he sat, making him feel for the moment that he was verily listening to the message of an inspired prophet, though, from the strangeness of the accent and manner, he might well believe, one who had been summoned to the work, like the prophets of old, from following the sheep amidst the mountains, or driving the oxen afield, with the herdsmen of Tekoa.

Professor Wilson was in body as in mind the very perfection of manly health and strength, a king of men, every inch a king. Nothing could possibly disguise him, not even the sad-coloured garments, the square Puritanic collar, and low broad-brimmed hat that of late years it was his delight to wear. If you saw him on his way to college amidst the crowd in Princes Street, or met him facing the blast on the North Bridge, his long tawny locks floating away from his coat collar before the wind, you would at once recognise in the erect and lofty frame, magnificent chest, firm elastic step, and stout oak cudgel of the Professor, the Christopher North of the *Noctes* and the *Recreations*. Nor was Sir William Hamilton's appearance at all less characteristic. Though not so tall as Professor Wilson, he was above the middle height, and the sinewy vigour of his well-compacted frame, the strength and penetration of his look, the

perfect self-reliance and finished courtesy of his manner, would at once have impressed you anywhere; while on the opportunity of a nearer view in his class-room, it was impossible to see the massive head, decisive yet finely cut features, dark, calm, piercing eye of the lecturer, and listen to his deep, firm, truthful voice, expounding the problems or annihilating some obnoxious theory of his science, in sentences strong and brilliant as polished steel, without feeling that here at least was a master,—one who had learnt the lesson given by the oracle to the wisest of men, who had fearlessly confronted the cruel Sphinx of self-consciousness and read her riddle, who, holding the keys of an invisible world, could unlock the hidden mysteries of thought; and having found such an one you might be pardoned if, in the enthusiasm of the moment, you were almost ready to exclaim, with Socrates in the Phædo, "that you would follow him as a god."

Sir William Hamilton was less popularly known than either of his distinguished contemporaries. Till the last few years, indeed, he was, in his own country at least, scarcely known at all. Nor is this surprising. Too ardent and severe a student to become actively identified with any considerable party in Church or State, he rarely appeared in public; and the sciences of his choice were precisely those furthest removed from popular sympathy and appreciation. The strange neglect into which these sciences had fallen also prevented for a time the recognition of his rare merit, even where this might have been confidently expected. For the circle of readers, never a very large one, really interested in Mental Philosophy, at the time when Sir W. Hamilton came forward to discuss its problems, was reduced to the narrowest dimensions, if not practically extinct. On the appearance of his first contribution to the *Edinburgh Review*, nearly thirty years ago, M. Cousin justly said that there were probably not fifty persons in the country who would be able to appreciate its value, or even to understand its meaning. This was strictly true, for the article in question, though for clearness and force of style a perfect model of philosophic exposition, was universally complained of at the time as unintelligible. To-day, the number of those who would welcome such papers

must be counted by hundreds instead of tens; but the change, it would be easy to prove, is mainly due to Sir W. Hamilton himself. When he appeared as its representative, Philosophy was, as I have said, at the lowest possible ebb in Britain. Reid was already forgotten, and the knowledge of mental science possessed, even by the best informed, was at most a polite acquaintance with Stewart, or a popular knowledge of Brown. Across the Channel, France and Germany had been recently roused to new speculative efforts, and the leading minds in both countries were full of excitement on philosophic questions; but in England the profoundest apathy prevailed, none cared for these things. If any reference to them found its way into a magazine or review, it elicited only an unexcited stare, or at most an expression of wonder as to what the writer meant. Logic and Metaphysics were exploded as the worthless relics of a dark and barbarous age, mental science was obsolete, and all that remained of philosophy, in any shape, was to be found in Bridgewater Treatises, Essays on Population and Political Economy, with occasional disquisitions on Jeremy Bentham and his greatest-happiness principle. Under these circumstances, the attempt to gain a hearing for the proscribed science seemed hopeless enough. Nothing daunted, however, Sir William Hamilton made it, and the event sufficiently justified the wisdom and courage of the step. His articles in the *Edinburgh Review* on the problems of pure philosophy, though by no means fully understood, gradually excited attention; and as the consciousness of ignorance is the beginning of knowledge, many were led to inquire farther, and in the end study the subject for themselves. The progress of this work was, however, at first characteristically slow. Sir William's articles were collected and translated abroad before they were generally known at home; his name was familiarly mentioned in foreign philosophical works before it was heard across the Tweed; the universities and literary societies of the Continent vied with each other in doing honour to his profound learning, when the reproach of ignorance was the only recognition he received from the banks of the Isis and the Cam; and while his cautious countrymen were doubtfully admitting his claim to a chair of philosophy in a Scottish university, he was signalised

by Brandis, in Germany, as the great master of the Peripatetic Philosophy,—by Cousin, in France, as the first metaphysician in Europe.

The publication of Reid's Works, however, at length secured for Sir William Hamilton at home the philosophic reputation he had so long enjoyed abroad. The masterly dissertations appended to that volume at once placed Sir William at the head of living philosophers, and gave a far more powerful impulse to the study of Psychology than any of his other writings. Many who had previously given up the study of speculative science in despair, finding its course a maze rather than a way, welcomed these dissertations, especially the first, on the Philosophy of Common Sense, as the very instrument they needed—the *novum organon* of a new and thoroughly progressive era in the history of the science. Psychology, as a developed consciousness, was here seen to have a basis, a method, and an end; its foundation being laid in the facts of nature, its progress secured by observation and analysis, its results throwing a flood of light on the whole development alike of the individual and the race—a key for the deeper explanation of the past, the present, and the future. True, little more than the starting-place was fixed, but this was established with such certainty, the surveys from the central point of view were so wide and accurate, and the course which all successful progress in future must take indicated in lines so firm and clear, that the student was led with kindled enthusiasm to explore the outlying country for himself, fully assured that his labours would not be in vain. The number of readers interested in the science who studied Sir William's writings and adopted his views, now rapidly increased every year, so that on the republication of his contributions to the *Edinburgh Review*, a second edition of the volume,—massive alike in size and contents,—was called for within a year after the issue of the first. Sir William Hamilton thus lived to reap the tardy first fruits of what he had so long and so laboriously sown; and these—though a mere scantling to the rich harvest of influence and renown that will hereafter be gathered in to that honoured name—are in themselves by no means small or unimportant results. When summoned from his work, Sir William had effectually broken up

the indifference of the public on philosophical questions, destroyed the authority of the false and shallow manuals that helped to produce it, attacked successfully the daring but baseless speculation of foreign schools, vindicated the sober philosophic ground taken by his countrymen, founded on it a severely scientific system of his own, created a school of thinkers in Britain, and acquired a European fame.

In speaking of Sir William Hamilton's influence, however, it must not be forgotten that he was a public teacher as well as editor and critic, and helped to revive the study of philosophy in this country quite as much through his chair as by his pen. Indeed it may be said that the class rather than his writings first made him generally known, as the latter for years after his appointment continued to be wholly anonymous. Sir William's election to the chair of Logic and Metaphysics, in fact, revolutionised the teaching of philosophy in the University. Instead of the meagre and profitless mixture of Logic and Ethics, Pneumatology and Ontology, Natural Philosophy and History, that of old constituted the staple of the lectures, the sciences to which the chair is specially devoted were treated in a manner worthy of their importance. For the first time probably since the foundation of the college, they were treated really as sciences, evolved from first principles, in systematic order, the parts being fully analysed, and each contributing to the organic unity of the whole. The news of this important change soon got noised abroad, the lectures grew famous, and attracted students from all parts,—not only from the other seats of learning in Scotland, but from English and foreign universities, especially from America. During my connection with the class, I remember several students crossed the Atlantic solely for the purpose of attending Sir William's course; and amongst the members of the class, which for years averaged a hundred and fifty, and sometimes approached two hundred in number, were generally to be found some from the English universities. Thus each year the class drew a body of students to Edinburgh; and each year a number more or less able to expound the system they had studied was scattered through the country. Full notes of the lectures, moreover, were taken, and extensively circulated, and through these many who had never heard Sir

William's prelections, who had never even read a word of his published writings, felt his influence and became his disciples. But, of course, it is not simply from the number who attended, but mainly from the kind and degree of enthusiasm awakened in those who undertook the work of the class, that Sir William's influence in reviving the study of philosophy through his lectures must be estimated. This enthusiasm was of the highest kind, often leading to intense and even passionate devotion to the work. Under its inspiration the men laboured not merely to make a respectable figure in the class, or gain its honours, however enviable, not simply even to master the system taught; but rather to seize for themselves the very keys of knowledge, to grasp, if possible, the harmonising principles of all science, the central truths of all philosophy. And this spirit was certainly reflected from the chair; it was by the living example before them that the highest intellectual energies of the students were aroused to such free, vigorous, and prolonged activity. Sir William Hamilton's personal relation to his pupils through his lectures and the general intercourse of the class, had thus a most important share in the philosophical revival he effected; and as it is the source of his influence at once, perhaps, most powerful and least generally known, I propose to consider it a little in the present paper, leaving the system taught,—Sir William's philosophy in general,—to be noticed more fully hereafter. The main outlines of that philosophy are before the world in his published writings, and they will vindicate his fame wherever the English language is known, wherever the reflective sciences are cultivated; but his living voice, his personal influence, will be heard and felt no more, and as, in common with numbers beside, I owe to these a debt of gratitude that can never be adequately acknowledged, much less repaid, I am anxious to record at least my sense of their worth. I may, however, at the outset, state such biographical particulars as can be given without special inquiry or examination, for which, indeed, the time has hardly yet arrived.

Sir William Hamilton was born at Glasgow on the 8th of March, in the year 1788, just six years before the death of Reid, and sixteen before that of Kant, the thinkers who overthrew the dominant Sensualism of the eighteenth century,

and laid the foundation of that deeper and more catholic philosophy which their ardent disciple was destined to consolidate and establish. His father, Dr. William Hamilton, who was professor of Anatomy and Botany in the university, died at the early age of thirty-two, exceedingly respected and beloved, and leaving behind him a great reputation. There is, or was, a tablet in the nave of the old cathedral, bearing a striking testimony to his early fame. Dr. Strang, in his recent work on the Clubs of Glasgow, speaks of him, indeed, as more celebrated than his father Dr. Thomas Hamilton, who occupied the same chair before him, and with Dr. Cullen founded the medical school of that city. Dr. Thomas, however, was a noteworthy man—distinguished not only among the men of science of his day for his sagacity and penetration, but in social life for his spirit, vivacity, and good fellowship. He belonged to two Glasgow clubs at least, the Anderston, and the Hodge-podge, the latter evidently a lively enough fraternity, and the former probably not particularly severe. "Among the members of the Anderston club," says Dr. Strang, "we may notice Dr. James Moor, the accomplished professor of Greek; Dr. Cullen and Mr. Thomas Hamilton, the great advancers of medical science; Professor Ross, a very Cicero in Roman literature; Adam Smith, the world-renowned political economist; and though last, not least, the brothers Foulis, the Elzevirs of the Scottish press." Of Dr. Thomas Hamilton's position as leader of the Hodge-podge Club, holding a foremost place in its "wit-combats," a rude but graphic picture is preserved in some doggerel verses quoted by Dr. Strang:—

"A club of choice spirits each fortnight employ
An evening in laughter, good humour, and joy;
Like the national council, they often debate,
And settle the army, the navy, and state.

"In this club there is a jumble of nonsense and sense;
And the name of Hodge-podge they have taken from thence;
If in but jumbling verses this ditty I frame,
Pray be not surprised for a Hodge-podger I am.

"If you choose to know more of this merry class,
Like the king's in Macbeth they shall one by one pass;
The man that can't bear with a good humoured rub,
I am sure is not worthy a place in this club.

"He who leads up the van is stout Thomas the tall,[1]
Who can make us all laugh, though he laughs at us all;
But *entre nous*, Tom, you and I, if you please,
Must take care not to laugh ourselves out of our fees."

The verses are certainly execrable; but in the last we see clearly enough the laughter-loving professor, with his commanding form, prompt and fearless intellect, perfect self-reliance, and hearty manly nature. These qualities were, in fact, hereditary, and the last three representatives of the family but displayed in arts the same virtues which their ancestors had shown in arms. They belonged to the noble house of Hamilton, that has played such a conspicuous part in Scottish history; Sir William being the lineal representative of the Hamiltons of Preston and Fingalton,—the oldest cadet of that house, itself a branch variously distinguished in church and state. There is still to be seen at Prestonpans, not far from the spot where Colonel Gardiner fell, a noble ruin of the old feudal residence of the family, which gave its title to the baronetcy on its creation in 1673. It is one of those massive square towers with arrow-slits pierced in the solid masonry below, and a frown of projecting battlements above that still remain scattered through the country as monuments of the older families; and sufficiently serves to show that the Hamiltons of Preston took their part in the fierce struggles, political and religious, which for a century rendered the seats of the Scottish nobility little better than posts of watch and warfare. In later times it must have proved a welcome refuge for the hunted covenanters, as we find that "Sir Robert Hamilton of Preston, fifth of that name, commanded the Cameronian insurgents at Drumclog and Bothwell Brig, and was throughout his zealous and busy life"—to quote the characteristic language of M'Millan's "Ravished Maid in the Wilderness"—"the principal stay and comforter of that afflicted remnant, who alone, amid the general defection of the times, continued faithful in their obligations to Christ and his covenanted cause." Mr. De Quincey records this connection of a Hamilton of Preston with the Covenanters, as a mere tradition for which he supposes there is no good historical authority;

[1] Dr. Thomas Hamilton.

but is rather inclined to believe it nevertheless, on the ground of internal evidence, fancying he traces "now and then in Sir William's polemics the sword-arm that charged at Drumclog." The fact, however, is quite authentic, and the resemblance by no means a mere fancy. The same strength of character, the same invincible courage, resolution, and independence are manifest in both. Curiously enough, too, it was through this very ancestor that Sir William formally established his right to represent the Hamiltons of Preston. The title had lain for some time dormant, and it was "by his service to this militant Cameronian confessor who died in 1703, that Sir William made good his claim to be the twenty-fourth in lineal male succession from Sir John Fitz-Gilbert de Hamilton of Rossavon and Fingalton, who flourished about the year 1330, and was the second son of the progenitor of the house of Hamilton."

Of Sir William Hamilton's early life I know little, except that when still quite young he was placed under the care of the Rev. Dr. Summers, minister of Mid-Calder, who had for several years the oversight of his education. He attended the junior classes at the University of Glasgow when only twelve years old, and was exceedingly indignant at being removed from the College to Dr. Dean's School at Bromley, regarding it as quite a degradation to be turned into a mere schoolboy again after having enjoyed the dignity of a gownsman. After remaining a year or two at Dr. Deans's, he returned to finish his course at the University, taking a high position in the senior classes, and devoting special attention to the philosophical ones, in which he carried off the first-prizes. During this time, he still spent most of his vacations at Mid-Calder with Dr. Summers, between whom and himself a sincere friendship sprung up, which continued without interruption till the death of the worthy clergyman, about fourteen years ago. The doctor had, indeed, early perceived the force and originality of his pupil's mind, as well as the generous ardour of his disposition. He was evidently charmed with his keenness of intellect, his fine sense of honour, his frank and manly bearing, and felt towards him not only admiration but warm regard. Referring to this period several years after in a letter to one of the magistrates of Edinburgh, the good doctor writes:

—"It was during the time of his residence with me that he (Sir William) began his first essays on subjects of philosophy, in which, even at that early period, I could not fail to discover striking marks of an acute and vigorous understanding. My expectations of his rising future distinction in literary attainments were fully realised; and during the progress of his studies at the University, his efforts were rewarded by his obtaining the first prizes in the philosophical classes. From my intimate knowledge of Sir William's studies at that period, as well as from my subsequently having had the best opportunities of attending to his progress in literary pursuits, it is doing him no more than justice to say, that I consider his talents and attainments to be of the brightest order; and that for perseverance and depth of research into any subject that has occupied his mind, as well as for ingenuity of conception, I have perhaps never met with any one that equalled, and certainly have never known any one that excelled him." "Respecting his moral and religious conduct," he adds, "it has uniformly been such, even from his earliest years, as would do honour to the purest heart, and such as the most scrupulous could not fail to approve."

From Glasgow Sir William proceeded, on the Snell foundation, to Balliol College, Oxford, where his course was a most distinguished one—unprecedented in fact. His honour-examination, for the number and difficulty of the books taken in, stood alone in the recollection of his contemporaries, and remains still, I believe, unrivalled. With the fullest knowledge of his great powers of intellect, resolute will, and iron constitution, it is indeed difficult to imagine how he accomplished what he did. He went up to the University in 1809, just after the introduction of the new system, when, under the powerful stimulus recently given to the whole course of study, the rivalry amongst the colleges was great, the competition keen, and the examinations severe. At the degree-examination, the candidates for honours were required to profess a certain number of books in History, Poetry, and Science; from fifteen to twenty being, I believe, considered a fair average if the men were thoroughly prepared with their work, as the perfect knowledge of a few books was always preferred by the examiners to even a respectable acquaintance

with many. Sir William, on going up for his degree, took into the schools with him not only far more than the usual average of books in Poetry and History,—in fact every classic author of mark, whether poet, orator, or historian; but in the department of Science, he professed all the works extant in Greek and Roman Philosophy. Under the latter head, indeed, the list would probably not be very large, as it could include little more than Lucretius, Cicero, and Seneca; but the amount of hard reading to be gone through in preparing the existing records of Greek Philosophy with the minute accuracy necessary for such an examination would be such as few, indeed, could stand. Under the head of Science, it was usual to take in at most only two or three books of Aristotle, the more popular of his treatises—the Rhetoric, Ethics, and Politics—being commonly selected, and one or two of Plato; but Sir William took in the whole of Aristotle, with the works of his early commentators, and the whole of Plato, with the Neo-Platonists Proclus and Plotinus, to say nothing of the fragments of both earlier and later philosophic doctrines preserved by Laertius, Stobæus, and the other collectors. Of course, as the examination was minute and searching in proportion to the number and abstruseness of the books professed, Sir William in taking in so many exposed himself to the sharpest trial; in fact openly challenged the severest scrutiny. The suspicion of the examiners would naturally be roused at the outset, and in the conviction that depth and accuracy must have been sacrificed to mere extent of reading, they would be sure to test the ambitious profession of the daring undergraduate in every possible way. Any latent weakness, any imperfect knowledge of the books, either as language or science, would thus infallibly be detected. Nothing daunted, however, Sir William stood the trial, and the event proved that he was only too well prepared. From the testimony of eye and ear witnesses, we learn that Sir William's examination in philosophy occupied two days, lasting six hours each day; that he was actually examined "in more than four times the number of philosophical and didactic books ever wont to be taken up even for the highest honours, and those likewise authors far more abstruse than had previously been attempted

in the schools;"[1] and that in "fourteen of his books on the abstruser subjects of Greek philosophy," the Metaphysics of Aristotle among the number, the examiners declined, with the most flattering compliments, to question him at all. A fellow-collegian, who was present at the examination, the Rev. W. Villiers, in writing to the patrons of the University in 1820, says of Sir William:—"In the department, however, of *science*, his examination stood, and I believe, still stands alone; and it certainly argued no common enthusiasm and ability for philosophical pursuits that in a university like Oxford, his examination should not only remain unequalled for the number, but likewise for the difficulty of the authors. It contained every original work of antiquity difficult or important in logic, on the philosophy of the human mind, on ethics, politics, and other branches of practical philosophy, on rhetoric and poetical criticism; and after a trial of many hours, beside the honours of the University, he received the thanks and public acknowledgings of the examiners, that he never had been surpassed either in the *minute* or the *comprehensive* knowledge of the systems on which he had been examined." Testimonies to the same effect, if possible even stronger, are given by others who were in the schools during the examination. It is Mr. Villiers who adds, that in "fourteen of his books on Greek philosophy he was not questioned, the greater part of these being declared by the masters to be too abstrusely metaphysical for examination." So that Sir William was strictly accurate, when some years after, in tracing the neglect of logic and philosophy at Oxford to its true cause, he wrote as follows:—"Since the institution of honours and of a real examination for the first degree in arts, a powerful stimulus has been applied to other studies—to that of logic none. Did a candidate make himself master of the Organon? he would find as little favour from the dispensers of academical distinction as he had previously obtained assistance from his tutor. For the public examinators could not be expected either to put questions on what they did not understand, or to encourage the repetition of such overt manifestations of their own ignorance." In these words, in fact, he but

[1] Letter written in 1820 by the Rev. A. Nicol, then librarian of the Bodleian, afterwards Professor of Hebrew, and Canon of Christ Church.

described the position he had himself once occupied, and the treatment he then received.

Sir William did not, however, confine his philosophical reading at Oxford to the standard writers of Greece and Rome, though these naturally occupied the first place. He had even thus early carefully studied the leading Greek commentators on Aristotle,—Themistius, Alexander, Ammonius, Simplicius, and Philoponus; the works of his Arabian expositors Averroes and Avicenna; the more philosophic of the Latin fathers, especially St. Augustine, of whom he always retained a high admiration; and the chief of the schoolmen, St. Thomas and Scotus in particular. In his zealous search amidst the monuments of mediæval thinking, he must, indeed, have disturbed many a volume in those old monastic college libraries, whose rest had not been broken for years, probably for centuries; many whose massive vellum-bound boards and brazen clasps have not been opened since he shut them nearly half a century ago. He had also at this time formed an acquaintance with the less known scholars and thinkers of the Revival,—Cardan, the elder Scaliger, Agricola, Valla, and Vives; had studied diligently the fathers of Modern Philosophy, Descartes and Leibnitz, both in their own writings and those of their followers; and finally, was deeply interested in the new direction and development of philosophic speculation on the Continent, of which scarcely any tidings had then reached this country. The main lines of those profound and exhaustive researches into the history of philosophic opinions which Sir William afterwards made were thus fairly traced before he left the University.

Having chosen the profession of the Law, Sir William, on leaving Oxford in 1812, returned to Edinburgh, entered at the bar the following year, and at once commenced practice as an advocate. As, however, the professional duties of the younger members of the bar are generally not very arduous for a year or two after their first appearance in the Parliament House,[1] he still had leisure to follow his favourite pursuits. He was, indeed, at this time, and for years afterwards, an ardent student, an incessant reader, living chiefly with his

[1] The Scottish Westminster Hall, originally the meeting-place of the Scottish Parliament.

books; mining diligently at intervals amongst the piled masses of forgotten learning in the dark cellars of the Advocates' Library; perplexing simple-minded librarians by constant inquiries for works affirmed to be in their keeping, but whose names and places were alike unknown; and driving veteran bibliographers to distraction by a ready knowledge of rare manuscripts, unnoticed first editions, and unique copies, far more extensive and minute than their own. These things were sufficient to awaken curiosity, and we find from Mr. De Quincey, who met Sir William Hamilton when on a visit to Edinburgh in the year 1814, that even then his rare and varied accomplishments, particularly his vast erudition, were quite notorious in his own circle. The following is the Opium-Eater's graphic account of the popular social feeling which Sir William's reading and scholarship had excited:—

"In the year 1814 it was that I became acquainted with Sir William Hamilton, the present professor of logic in the University of Edinburgh. I was then in Edinburgh for the first time, on a visit to Mrs. Wilson, the mother of Professor Wilson. Him, who at that time neither *was* a professor, nor dreamed of becoming one (his intention being to pursue his profession of advocate at the Scottish bar), I had known for a little more than five years. Wordsworth it was, then living at Allan Bank in Grasmere, who had introduced me to John Wilson; and ever afterwards I was a frequent visitor at his beautiful place of Elleray, on Windermere, not above nine miles distant from my own cottage in Grasmere. In those days, Wilson sometimes spoke to me of his friend Hamilton, as of one specially distinguished by manliness and elevation of character, and occasionally gazed at as a monster of erudition. Indeed, the extent of his reading was said to be portentous—in fact, frightful; and, to some extent, even suspicious; so that certain ladies thought him 'no canny;' for, if arithmetic could demonstrate that all the days of his life, ground down and pulverised into 'wee wee' globules of five or eight minutes each, and strung upon threads, would not furnish a rosary anything like corresponding, in its separate beads or counters, to the books he was known to have studied and familiarly used, then it became clearer that he must have had *extra* aid, and, in some way or other, must have read by proxy. Now, in that case we all know in what direction a man turns for help, and *who* it is that he applies to when he wishes, like Dr. Faustus, to read more books than belonged to his own allowance in this life. I hope sincerely there was no truth in these insinuations; for, besides that it would be disagreeable to have a hanger-

on like Mephistopheles expecting to receive a card every time that you gave a little dance, I, for my part, could have no reliance on the accuracy of his reading. Candour, however, obliges me to mention, that at one time Sir William had a large dog in Great King Street, Edinburgh, very much answering to the description of the dog which Goethe and at least *one* of our old Elizabethan dramatists assigns to poor Dr. Faustus. Surely it never could be the same identical dog, figuring first in Frankfort during the fifteenth century, and then in Edinburgh during the nineteenth!"

Nearly all the great thinkers of the sixteenth century, who took any interest in natural science, this being popularly regarded as the occult basis of the black arts, are represented as keeping large dogs of suspicious origin and unnatural powers. The favourite companion of Cornelius Agrippa, in particular, was reported to do for him exactly the kind of service suggested by Mr. De Quincey in this extract. As Butler puts it—

> "Agrippa kept a Stygian pug,
> I' th' garb and habit of a dog,
> That was his tutor, and the cur
> Read to the occult philosopher,
> And taught him subtly to maintain
> All other sciences are vain."

With regard to the particular animal in question, I am glad to be able to relieve Mr. De Quincey's natural anxiety by assuring him, on good authority, that he was no "cacodæmon" but a genuine dog, who died in his kennel as all right-minded dogs should, making as quiet an end as any Christian child.

Mr. De Quincey goes on to describe his first interview with Sir William, giving evidently, in the points touched upon, a truthful picture of his appearance and manner at the time:

"One morning I was sitting alone after breakfast, when Wilson suddenly walked in with his friend Hamilton. So exquisitely free was Sir William from all ostentation of learning, that unless the accidents of conversation made a natural opening for display, such as it would have been affectation to evade, you might have failed altogether to suspect that an extraordinary scholar was present. On this first interview with him, I saw nothing to challenge any special attention beyond an unusual expression of kindness and cordiality in his *abord*. There was also an air of dignity and massy self-dependence diffused over his deportment, too calm and unaffected to leave a doubt that it exhaled spontaneously from his nature, yet too unassuming to mortify the pretensions of others. Men of genius

I had seen before, and men distinguished for their attainments, who shocked everybody, and upon me, in particular, nervously susceptible, inflicted horror as well as distress, by striving restlessly and almost angrily for the chief share in conversation. Some I had known, who possessed themselves in effect pretty nearly of the whole, without being distinctly aware of what they were about. . . . . In Sir William Hamilton, on the other hand, was an apparent carelessness whether he took any conspicuous share or none at all in the conversation. It is possible that, as representative of an ancient family, he may secretly have felt his position in life; far less however in the sense of its advantages than of its obligations and restraints. And, in general, my conclusion was that I had rarely seen a person who manifested less of self-esteem, under any of the forms by which ordinarily it reveals itself—whether of pride, or vanity, or full-blown arrogance, or heart-chilling reserve."

Sir William at this time became acquainted with Dugald Stewart; and the first years of his residence in Edinburgh were thus spent in personal intercourse with the philosopher, whose successor in the history of Scottish speculation he was destined to become, and whose collected works, at the time of his own death, he was engaged in editing. Mr. Stewart would be sure to welcome Sir William, and sympathise warmly with his pursuits, even though he might not be able to appreciate fully his acquirements. This indeed could hardly be expected, as Sir William's comprehensive erudition included a minute acquaintance with philosophic systems of whose existence Mr. Stewart had scarcely even heard. In a letter, written a few years later, Mr. Stewart acknowledges himself "indebted to Sir William for much curious and valuable information about the later philosophers of Germany," regretting, at the same time, "that he had not an earlier opportunity of forming his acquaintance, as he has no doubt that he would have profited greatly by his assistance in the pursuit of his favourite studies." It was at Mr. Stewart's that Sir William met Dr. Parr, and, as I have heard it reported, astonished the colossal philologist by evincing a range and accuracy of scholarship not inferior to his own. The erudite doctor, probably in gracious condescension to the society in which he found himself, had at first discoursed of Greek philosophy, his knowledge of which was certainly extensive, but finding he did not achieve any decided superiority in this chosen walk, betook himself to an

obscurer field of learning, where he naturally expected to reign alone; he led the conversation towards the later and less known Latin poets, with their imitators at the Revival of letters, and in still more recent times, but he soon discovered that even here his companion was at home; until at length finding that, turn where he would, the young advocate before him could not only follow step by step, but was actually able to continue his quotations, and correct his references, his imperturbable superiority gave way, and he was startled into the sudden inquiry, "Why, *who* are you then, sir?" The doctor, as afterwards appeared, did not forget Sir William Hamilton, nor lose the impression his extraordinary acquirements had made upon him.

In the year 1820, on the chair of Moral Philosophy in the university becoming vacant by Dr. Brown's death and Mr. Stewart's retirement, Sir William Hamilton came forward as a candidate. His chief, if not his only opponent, was his friend and fellow-advocate the late professor, then Mr. John Wilson. It is no disparagement whatever of Professor Wilson to say, that his rival's claims were far superior to any which he could then offer; for though Sir William had as yet published nothing on the subject, it was well known that he had for years made a profound and almost exclusive study of philosophy in all its branches; and the testimonials he produced to his attainments in the science were of the very highest kind. Many of his Oxford tutors and contemporaries, several of them by this time holding important posts in the university, came forward to support him on this occasion; amongst others, Dr. Jenkyns, the late master of Baliol, Dr. Hawkins, soon afterwards provost of Oriel, the Rev. A. Nicoll, afterwards professor in the university, and the Rev. J. Yonge, fellow of Exeter. Dr. Parr also voluntarily wrote an elaborate and urgent letter to Mr. Stewart, pressing on his attention what he considered Sir William's peculiar and paramount claims. Finally, Mr. Stewart himself, then just on the eve of his retirement, gave Sir William his support; and in the letter which he wrote to Mr. Solicitor-General Wedderburn on the subject, says emphatically—"I look forward with peculiar satisfaction to my future connection with him, if, fortunately for the university, he should succeed in attaining

the object of his present ambition." On the other hand, Mr. Wilson had hitherto given little or no attention to philosophy at all, but was chiefly known as a poet of promise, a daring though genial critic, and a writer of dashing political articles rather high in doctrine. From the peculiar nature of the patronage, however, it happened then, as sometimes now, that the intrinsic merits of the candidates, and their relative fitness for the vacant post, had comparatively little to do with the election. Of course, a large and popular body like the Town-Council is particularly liable to be affected by party influence, political or religious; and such influence generally operates most strongly at an election. In 1820 political feeling ran high. Everybody was a Whig or a Tory—a decided Whig, or a decided Tory. The euphuistic softening and blending of party names familiar to our ears would have been a Babylonish dialect to the sturdy politicians of that era. Liberals were unknown, Conservatives were unknown, and a Liberal-Conservative would have been reckoned a combination as utterly fabulous as a griffin or a centaur. You were a Whig or a Tory, there was an end of the matter. Mr. Wilson was a Tory, true blue; a majority of the Council were Tories, good men, and true to the blue, and he was elected to the vacant chair. The election proved to be a very good one, but the patrons were not in the least responsible for that. They had chosen a capital professor, but no thanks to them—it was by accident rather than design.

The year following, however, Sir William entered the university as professor of Universal History, having accepted the offer of the chair made him by the Faculty of Advocates, its patrons. The salary attached to the appointment was small, and the duties for the most part still less, as the class not being included in the curriculum, it was difficult to secure any regular attendance, and often the session passed without the delivery of a single lecture. Sir William, however, succeeded in forming a class, numbering, I believe, between twenty and thirty, to which he delivered a short course of lectures. It is obvious that lectures on universal history must take pretty much the form of lectures on the philosophy of history; and this was the character of Sir William's prelections. The special subject was, I believe, the character and history of the classic nations of antiquity, with the in-

fluence of their literature, philosophy, and laws on modern civilization. Of these lectures, Professor Wilson says, that "he had had the best opportunity of knowing what was thought of them by the most distinguished students, who spoke with enthusiasm of their sagacity, learning, eloquence, and philosophical spirit."

It need scarcely be said that Sir William Hamilton was still diligently occupied with his favourite pursuits; but it is more important to add that his researches now took a direction too often neglected by metaphysicians in general—the study of the material organs and instruments of the mind. He was engaged in a thorough examination of the nervous system, and in investigating the relations that exist between Psychology and Physiology. Sir William had, in fact, always been fond of anatomy and of physiology, a predilection probably inherited from his immediate ancestors. "Already in 1814," says Mr. De Quincey, in his short account of the intercourse he then had with Sir William, "I conceive that he must have been studying physiology upon principles of investigation suggested by himself." He now resumed the subject with fresh zeal, undertaking a more systematic and minute examination than before, while circumstances soon contributed to give a special and practical direction to his inquiries. Phrenology was at this time exciting some attention in various parts of the country, and especially in Edinburgh, where Mr. George Combe, the friend and correspondent of Gall and Spurzheim, had come forward as the representative and expositor of their system. The pretensions of the new science were by no means humble; as it claimed not only to furnish a sure index of mental character and endowment, but to be, on its theoretical and practical side respectively, a system of philosophy, and an instrument of education, and these so perfect as finally to supersede all other systems and instruments whatever. Such claims were too high to pass without challenge from those interested in philosophy, and as the so-called science professed to be wholly founded on facts—physiological facts—Sir William proceeded to test its worth by an examination of these. He selected several of the leading points laid down as the physiological basis of the system—such as the relative size and function of the cerebellum, the age at which the

brain is fully developed, the presence and value of the frontal sinus—and found, after a series of experiments, that the dictum of the phrenologist on each point was not only erroneous, but absolutely false. The evidence that convicted the system of fundamental fallacy was neither slight nor partial. In testing the first of the points mentioned, for example, I know that Sir William went through a laborious course of comparative anatomy, made numerous experiments on the living animal, and dissected with his own hand several hundred different brains; while in order to ascertain the truth with regard to the frontal sinus, he sawed open a series of sculls, of different nations, both sexes, and all ages. Sir William embodied the result of his researches in two papers, read before the Royal Society of Edinburgh in the year 1826. These papers involved him in a controversial correspondence with Mr. Combe, and subsequently, on his visit to Edinburgh in 1828, with Dr. Spurzheim; but the points at issue were never brought to a decision, as Dr. Spurzheim refused to submit them to any adequate and impartial judges, demanding instead that they should be discussed before a popular assembly, and decided by the voice of a public meeting. Of course Sir William Hamilton had too much respect for himself and the scientific questions at stake, to bring them before such an utterly incompetent tribunal. Sir William's polemic however was by no means without practical result; for the points in which he had convicted the phrenologists of fundamental error being reproduced against them by others, not only in this country, but on the Continent, weakened the confidence of the public in their statements, and thus helped to arrest the progress of the system, with its spurious science, materialistic philosophy, and demoralising art.

Sir William was soon, however, to be engaged in more important, as well as more congenial work. In 1829, on Lord Jeffrey's retirement from the editorship of the *Edinburgh Review*, Professor Napier, his successor, requested Sir William to write a philosophical article for the first number under his management. The new editor was a personal friend, who knowing Sir William's powers, and sympathizing in some measure with his pursuits, was naturally anxious to secure him as a contributor. As the new philosophical move-

ment in France, produced by the zeal and eloquence of M. Cousin, had at that time received no notice from the literary journals of this country, Professor Napier wished Sir William to undertake a review of the French philosopher's lectures. He was averse to this, because, while entertaining the highest admiration for M. Cousin, he was opposed to his system, and a review of his lectures must involve an unfavourable criticism of the doctrine they expounded. Professor Napier, however, was inexorable, he would accept no refusal; and so, under this pressure, and in considerable haste (it was the year of his marriage), Sir William wrote the first, and in many respects the most striking of his contributions to the *Edinburgh Review*—the celebrated article on the Philosophy of the Unconditioned. The reception of the paper in this country has been already referred to—in Sir William's own words—"The reasonings were of course not understood, and naturally, for a season, declared incomprehensible." On the Continent it was appreciated at once, and, especially in France, excited great attention. M. Cousin himself was among the first to recognise and proclaim its rare merit. He welcomed it, indeed, with the generous enthusiasm of a sincere lover of science. True, it had attacked the leading points of his favourite doctrine in the most unanswerable way, but all personal considerations were lost sight of in his joy at discovering that "Scotland possessed such a worthy successor to Dugald Stewart," and was once more fitly represented in the great council of European philosophers. An extract from a letter written to a literary friend in England will best explain his feelings at the time. His correspondent (who had not, however, himself yet seen the article) having informed him that the number of the *Edinburgh Review* just published contained a "bitter attack" upon him, M. Cousin in his reply says:—

"How could an Englishman approve of a French work, especially a work of philosophy, and still more of speculative philosophy? I was therefore prepared for an article more than severe on the part of the *Edinburgh Review*, and said so to one of my English friends. He has read it, this terrible article; and from what he tells me, I conclude that it is very polite towards me personally, and written in full knowledge of the cause. An extract from it which I have received has singularly struck me. I did not

believe that there was an individual beyond the channel capable of interesting himself so deeply in metaphysics, and I regard this article as an excellent augury for philosophy in England. I am therefore thankful to the author, and wish that he knew it. You will please me by information as to his true name, for it is here doubted whether you are correct in the person you have mentioned as the writer, and I request of you on this point all the information you may be able to collect. I think he is wrong in his objections to my doctrine; but I must do him the justice to say that he has profoundly studied and perfectly understood me. I should wish him to read my lectures of 1829, the second volume of which contains ten lectures on Locke which might interest an Englishman."

In a second letter, after reading the article and having learned the author's name, he writes:—"Sir William Hamilton's article has arrived, and I have read it. It is a masterpiece. Mr. Brougham has good reason to speak of it highly. For my part I have done the same here, and I affirm that the article is so excellent that there cannot be fifty persons in England competent to understand it. It is truly to be regretted that such talents have not produced more. You seem to speak to me of other articles from the same hand. Where are these articles, and what are they?" He subsequently adds:—"The information you are to send me regarding Sir W. Hamilton is expected with so much the more impatience, as I wish to push my chivalry towards him to the point of having his article translated." This was accordingly done. With regard to the style, M. Cousin afterwards says, most justly—"That article is by no means easy to be understood. When once the sense is comprehended, it is found to be perfectly good and correct; but the style is very condensed; every word is pregnant with meaning. The soundness of its views, the extensive acquaintance with philosophical systems, and the profoundness of thought which it exhibits, can only be appreciated by those who are of the *métier*; it is, in short, an article written for a few minds only throughout Europe, whilst to the multitude its very force and merit will render it obscure. The conciseness of expression in Sir William Hamilton, with the difficulty felt by ordinary readers of understanding him, has induced many to look upon him with distrust as a follower of the German systems, and a perverter of the strict and cautious philosophy of the Scottish

school. But such an idea is altogether erroneous. Sir William has indeed studied attentively the German metaphysics; but the result has been only an increased attachment to the philosophy of Scotland. The obscurity of his writings arises not out of any confusion in his own views, but entirely from the reader's own insufficient acquaintance with the subject." M. Cousin some years later expressed himself, if possible, in terms of still warmer admiration of his opponent's rare philosophic power. That the feeling was quite mutual may be sĕen from the dedication prĕfixed to Sir William's edition of Reid's works, and in other references scattered through his writings. Indeed, this article, so decisive in tone, laid the foundation of a life-long literary friendship between these illustrious thinkers. They were foemen well worthy of each other's steel; and they encounter in the grand old style, with the utmost spirit and resolution, yet with the noblest feeling of mutual respect, and the perfect courtesy of true-born knights.

Sir William now became a regular contributor to the *Edinburgh Review*, and for the next seven years, two and sometimes three articles appeared annually from his pen. Of these it will be sufficient to mention two—that on the *Philosophy of Perception* (a review of Reid and Brown), which appeared in 1830, and the one entitled *Recent Publications in Logical Science*, in 1833. These articles, which evinced the most perfect command of the whole resources both of the literature and science of logic and metaphysics, more than fulfilled the expectations his first contribution had excited. The three essays I have specially noticed constitute in fact a full but condensed examination of the central problems in Metaphysics, Psychology, and Logic respectively; and they demonstrate that the writer had not only made himself familiar with the whole development of these sciences in ancient and modern times, but that having subjected their actual state and constitution to the scrutiny of a severely philosophic intellect, he had reached for himself foundations broader, surer, and more scientific than those of his predecessors. Sir William's philosophical position was accordingly now fully taken, and his fame widely established on the firmest basis. He was universally regarded on the Continent and in America as the great living representative of the Scotch school, destined to

consolidate and carry on the work that Reid and Stewart had so well begun; while all interested in the progress of that work could not but deplore that, having yet found no position worthy of his powers, his contributions to the science in which he had proved himself a master should be restricted to occasional articles in a literary and political review.

These regrets, however, were not to be of long continuance. The opportunity so ardently desired by the friends of philosophy came soon after; and at length a way was opened for Sir William to take his true position as public teacher of the sciences to which he had devoted his life. Early in the year 1836, Dr. Ritchie, then professor of Logic and Metaphysics in the university, resigned his chair, and Sir William without delay declared himself a candidate for the vacant post. It may naturally be thought, perhaps, that it would be scarcely necessary for him formally to take this step; that his claims being so well known and so pre-eminent, the patrons would have decided at once, and elected him without a dissenting voice. So far, however, was this from being the case, that it remained for some time very doubtful whether he would be chosen at all. It actually became necessary for his friends to exert themselves to avert the public disgrace of his rejection, which it seemed not improbable the city Council, if left to themselves, might bring upon the country. M. Cousin,—who two years before had said emphatically in conversation with Professor Pillans, that from the peculiar bent of his mind, and his pre-eminence above all his Scotch and English contemporaries, Sir W. Hamilton was the very man to be professor of logic at the first vacancy, while his election would be an honour to the university and a benefit to European philosophy,—now writes an urgent letter from his sick bed, evidently, however, not without a feeling of surprise that it should be needful for a stranger to speak at all. The tone and spirit of the letter, which is a long one, may be gathered from the following extracts:—"Sir W. Hamilton is the man who before all Europe has, in the *Edinburgh Review*, defended the Scottish philosophy, and posted himself its representative. In this relation the different articles which he has written in that journal are of infinite value, and it is not I who ought to solicit Scotland for Sir W. Hamilton; it is Scotland her-

self who ought to honour, by her suffrage, him who, since Dugald Stewart, is her sole representative in Europe." Again, "He is above all eminent in logic. I would speak here as a philosopher by profession. Be assured that Sir W. Hamilton is the one of all your countrymen who knows Aristotle the best; and were there in all the three kingdoms of his Britannic Majesty a chair of logic vacant, do not hesitate—make haste—give it to Sir W. Hamilton." On the question of style, M. Cousin adds:—"Sir W. Hamilton has not even the very slightest appearance of obscurity. His style is substantial and severe, but of a perfect plainness for every one acquainted with the subject and not incapable of attention. No one is more opposed to, no one is more devoid of, the vagueness and obscurity of the German philosophy, in several of its most celebrated authors. To be popularly clear, there is only wanting to Sir W. Hamilton the space requisite fairly to develope his thought; and that space is not found in a review—it is only fully obtained in a course of lectures." He concludes, "In short, my dear Mr. Pillans, were there not too much of pretension and arrogance in the request, I would entreat of you to say in my name to the person or persons on whom depends this nomination, that they hold, perhaps, in their hands the philosophical future of Scotland; and that it is a foreigner, exempt from all spirit of party or coterie, who conjures them to recollect that what they are now engaged in is to give a successor to Reid and Dugald Stewart. Let them consult the opinion of Europe." Professor Brandis, the first living authority on ancient philosophy, writes from Bonn:—"I am happy in having an opportunity of acknowledging the high respect and admiration which I have long felt for Sir W. Hamilton's great talents. Possessed with uncommon acuteness, penetration, and real philosophical genius, Sir William Hamilton, according to my opinion, is almost unparalleled in the profound knowledge of ancient and modern philosophy, and enjoys the advantage of great clearness in explaining the most difficult and abstruse subjects of philosophical discussion. Every university in Europe certainly would be proud to possess a professor of such high and acknowledged reputation; and no man in Great Britain, as far as I can judge, could

venture to enter into competition with Sir William Hamilton for a professorship of logic and metaphysics in any British university." Other witnesses of high character give further evidence as to Sir William's reputation, both on the Continent and in America. At home, Lord Jeffrey, Professor Napier, and Professor Wilson, each the centre of a large literary circle, wrote voluntarily to the patrons, stating, not simply as their own opinion, but as the unanimous verdict of all capable of judging, with whom they had any intercourse, that Sir William Hamilton's claims to the vacant chair were altogether peerless. Lord Jeffrey, in closing his letter, says:—"I cannot conclude without stating to you (he is addressing the Lord Provost) my sincere conviction, founded upon what I know to be Sir William Hamilton's reputation among the learned, that if the choice of the town council should fall upon any other person, the first sentiment of those who concern themselves about such studies, not only in Great Britain but in France and Germany, will be one of *surprise*, and the next of eager *anxiety* to be made acquainted with the singular merits of the hitherto unknown individual to whom he has been *justly* postponed."

While all the judges *de jure* were thus perfectly united, the *de facto* electors continued, however, to be divided. The first philosophers in Europe and his own country had with one voice chosen Sir William; but the worthy bailies of the Grassmarket and the West Port, of the High Street and the Canongate, hesitated to admit his claims, and remained still unconvinced. In other words, Sir William Hamilton was not actively identified with any powerful party in Church or State. It has been already noticed that, from its popular nature, the patronage was liable to be strongly affected by party influences. At the election formerly referred to, the political element had been in the ascendant, now the disturbing force was mainly religious. During the last thirty years, indeed, the council may be said to have passed through three stages of influence—the political, the religious, and finally, since the abolition of tests, the sectarian, though it is scarcely correct to say that it has passed through the last, that being the existing stage. In 1836, however, the tests were still in force, and the opposition to Sir William took very much the form of an Evangelical combination against the

more moderate party in the council. One member indeed had the candour, as well as the modest assurance, to confess publicly that there was, on this occasion, "A coalition between the Evangelical Dissenters and the *Churchmen friendly to religion.*" The Coalition wished of course to have a candidate of orthodox views and evangelical sentiments; and accordingly, Mr. Isaac Taylor, the author of several religious essays, was fixed upon as a fit and proper person to represent their religious opinions in the university. The new candidate might be innocent of any save the most superficial knowledge of either the literature or science of the subjects to be taught, and his supporters implicitly admitted as much; but his reputation was high in the churches to which the members of the coalition belonged, and they urged with exquisite relevancy the cogent argument that, being theologically sound, he was therefore suitable. The pietistic unction manifested on the occasion is really affecting. The gentleman who proposed Mr. Taylor dwelt, we are told, "with great fervour on the vast advantage that would accrue to the university from placing in the chair a man of such undoubted piety;" another councillor gloried in the fact that members of different sects "had united in favour of an individual who, if elected, would advance the interests of pure and undefiled religion;" while a third, referring to Sir William Hamilton, says emphatically:—"Then on the point of religion, they had no evidence that he would set it forth so boldly, uncompromisingly, and distinctly as Mr. Taylor would." In reading the speeches of Mr. Taylor's friends, one would, in fact, naturally suppose that the election must be for the vacant pulpit of some city church at least, if not for a city missionary.

Furthermore, the Coalition held that the candidate should be not only a person of evangelical views, but a popular author,—a writer of showy and successful evangelical works; deeming the possession of a flowing, ornate, diffuse style, an indispensable condition to the proper treatment of such light and popular subjects as Logic and Metaphysics. Mr. Taylor met this condition; he had written works that were well known in the narrow circles to which the members of the Coalition belonged, which all of them had heard of, most of them had seen, and a few had even read. On the

other hand, Sir William Hamilton had written no religious works; his published writings were not widely popular; it was doubted by critics of the Corn-Exchange whether they were even intelligible. Some of the council had, it seems, attempted to read Sir William's articles, but with very indifferent success. One can, indeed, easily imagine their natural amazement on encountering at the outset such expressions as "the unconditionally unlimited, the unconditionally limited," "formal categories of thought," "cognizance of negations hypostatized as positive." A few, however, seem to have actually succeeded; and one critical councillor, lifted above himself by the consciousness of official responsibility and official insight, states that, on reading the articles "they did not appear to him to carry out his (Sir W.'s) high reputation." While loftily admitting that Sir William "may have elicited admiration in a few French philosophers," he at the same time suggests that he has now to pass the ordeal of a severer criticism, and that it is possible the verdict of the European universities may be reversed by the judgment of the higher council to which he had now appealed. It was sufficiently clear he had not excited the admiration of the Coalition, who regarded him as an obscure and unpopular writer. In fine, they sum up their objections on this head in the emphatic declaration, "that he may have written well for the few, but he had not written for the many." Here again one would naturally imagine that the election referred to the editorship of a local newspaper or a religious periodical. In reading the speeches made on the occasion, it is indeed very difficult to discern what view a councillor took of his duty, and what chiefly influenced him in making up his mind as to his vote. The authorship of a religious essay, especially on a subject of which we know, and can know little or nothing, evidently had great weight. Mr. Taylor, the favourite of the Coalition, had written a treatise entitled "The Physical Theory of Another Life." There was another candidate, a clergyman from Rotterdam, whose only testimonial seems to have been a religious essay on "Mutual Recognition in the Next World;" and the force of this claim, slight as it may appear, seems to have been recognized by some of the patrons, one of whom, in stating the difficulty he had experienced in deciding between the

candidates, says, "of Mr. Musten of Rotterdam I have a high opinion, from his work on Recognition in the Next World, which I have been reading with delight." Fortunately, there does not appear to have been any candidate who had distinguished himself in Unfulfilled Prophecy; had there been, I feel sure Sir William Hamilton would have had no chance whatever of success. Curiously enough, however, Sir William's old antagonist, Mr. George Combe, was a competitor; and his friends, though few, seem to have been very much in earnest, and to have made up in intensity of feeling what they lacked in numbers. The councillor who proposed Mr. Combe gave a glowing account of the state and prospects of Phrenology, describing it as in a most commanding position, having lived down all opposition, and silenced all opponents —"the day for twitting about bumps is gone by. Where are all their gibes now?" he exultingly exclaims; intimating at the same time, that it would soon prevail universally, to the exclusion of every other system of philosophy or education whatever. Meanwhile he promised, on behalf of Mr. Combe, that, if elected, he would deal tenderly with the prejudices of the weaker brethren who still had a lingering attachment to the ancient superstition. Mr. Combe himself also considerately engages, in a private note, that if appointed to the chair, he will bury the old system with the utmost decency, and not wantonly outrage the feelings of surviving friends and relatives. He was, however, still too much in advance of the time, and his supporters at the final muster numbered only three.

The chief opposition, of course, proceeded from the Coalition, whose unscrupulous activity threatened at one time to endanger the result of the election. Their cause being intrinsically weak, they sought to strengthen it in a way too common with such combinations at such a time. Not content with opposing Sir William Hamilton in public, they endeavoured, by whispered inuendoes, to damage him in private. Nothing, it is well known, makes men more reckless of the means they use to secure their ends than the spirit of religious bigotry envenomed by sectarian bitterness. This spirit, now fully aroused, manifested itself in the usual way. Malignant and cowardly as ever, it grasped its darling instru-

ments, the cloak and dagger of insinuation, and attempted its favourite policy, that of stabbing the obnoxious reputation in the dark. The weapon employed was, of course, the *odium theologicum.* There was a panic at that time, as there always is amongst the weak-minded and ignorant, on the subject of Germanism. It was feared that the venerable Old Kirk, the Pharos of Orthodoxy, would be swamped by the shifting sands and advancing tides of the German Ocean. Though groundless, the alarm thus excited was real, and tended admirably to give force to an electioneering-whisper. The Coalition eagerly availed themselves of it. Vague rumours were judiciously set afloat of more than suspected heterodoxy—of Germanism and Neology,—words in themselves utterly without meaning to those who used and those who listened to them; but which, as symbols of the current fear, and as interpreted by the compassionate shrug, and mournful shake of the pious slanderer's head, became invested with the darkest significance. It was intimated that the obnoxious candidate had been diligently studying the writings of the German pantheists, had imbibed their spirit, and adopted their views. Think of such charges brought against Sir William Hamilton! He, the most thoroughly Scotch of all Scottish thinkers, who had assailed with the force of a resistless dialectic the ambitious systems of German speculation, and stood before all Europe as the champion of the sober and more reverent philosophy of his countrymen, is stigmatized by his grateful fellow-citizens as an alien. And the metaphysician who, at a time when theological professors were aggravating the current scepticism of an inquiring era, by teaching in their divinity-halls doctrines, such as the fatalism of Edwards, subversive alike of morality and religion;—the metaphysician who, at such a time, when they seemed drifting more widely than ever asunder, vindicated on the highest grounds the essential harmony of philosophical and revealed truth, is traduced as a sceptic by the professed friends of religion. It is the old story over again. It is but too evident that he was in his own country; that such friends, such foes, could be only those of his own national household. To charge this wretched proceeding on any sect or party as a whole, would, however, be unfair, though experience daily proves that they are

many in every sect who are capable of such conduct. It is but another illustration of what all familiar with history or with life well know, that there is nothing blinder, nothing more cruel, demoralising, and utterly unjust than the spirit of sectarian intolerance.

On the day of election one of the Coalition, who seems to have been the *Joseph Surface* of the party, having towards the close of a maudlin hypocritical speech, rather overacted his part by unconsciously revealing the darker policy of the brotherhood, met with a well-merited rebuke. Mr. Adam Black, then treasurer of the council (now member for the city), immediately rose, and at the commencement of his speech, thus pointedly referred to the Coalition and its representative :—

"It was, he said, one of the most unpleasant signs of the present times, that, whenever men came forward with an object in view, they invariably made a stalking-horse of religion. Whatever might be the matter under discussion, they were ready to cry out heresy against their neighbour, and, by this means, more mischief had been done in the world than by anything else. Had it come from individuals who joined the holy office of the Inquisition and were prepared to burn men, thinking they did God service; had it come from individuals who sincerely thought they were doing service to religion, though injuring their fellow-creatures, either in their fame or their worldly prospects, he could have understood it. But there was another class—men who showed no regard to religion in their private conduct; men who habitually took God's name in vain in their common conversation; men who had done nothing to advance the interests of real religion. When they come forward with such canting, hypocritical professions on that subject, he freely admitted that he could not express the feelings of disgust with which he listened to them. He could excuse a man, who had all his life acted under a strong sense of the principles of religion, and who, in the application of those principles to a particular line of conduct, sometimes carried those principles to extreme lengths; but when a man who had never before shown any symptom of religious feeling, put on the semblance of it to accomplish a purpose, he looked on such conduct with infinite disgust. The last speech, however, had the merit of having let out the secret of that influence which had been employed against Sir William Hamilton. Men had talked of the influence of German philosophy and neology; they did not say that Sir William Hamilton was an infidel; but they led them by a quiet, underhand, serpentine, creeping induction, to draw the conclusion

that he was an infidel. Now, if they thought so, let them say so at once. That gentleman had published several articles—if they contained such sentiments let that be shewn."

The coalition failed as it deserved to do. Indeed, by a natural reaction, the extreme course pursued by its unscrupulous members disgusted some of their own friends, and on the day of election others beside Mr. Black belonging to the religious sections of which it was avowedly composed, publicly denounced its proceedings in the Council-Chamber. Sir William Hamilton was elected by a majority of *four votes.* On the first vote being taken the numbers were for Sir W. Hamilton 14; for Mr. Taylor 10; eight votes being distributed amongst other candidates. At the second vote, the outlying eight were equally divided, and the final numbers were, for Sir William 18; for Mr. Taylor 14. By this narrow majority was the native school of philosophy in Scotland, as represented in her university teaching, rescued from premature extinction, and the country at large saved from the indelible disgrace of having rejected the noblest of her philosophic sons.

Sir William Hamilton, having now taken his true position in the university, gave his chief attention during the next few years to the Class. For its use the edition of Reid's works was originally undertaken, but while passing through the press it expanded to a size much beyond the first intention, and instead of retaining the humble character of a text-book, acquired the dignity and value of an original philosophic work. Almost immediately after entering on his new duties, Sir William was involved in a lengthy correspondence with the patrons on his right to divide the class into two sections, the one for Logic, the other for Metaphysics, devoting an hour daily to each. The discussion was, however, fruitless, and as it would be impossible to give an outline of Sir William's arguments in a sentence or two, I pass on to describe the course he actually pursued, and the effect it produced. Professors in the literary faculty of a Scotch university, as most readers know, find an obstacle to the full discharge of their higher duties in the early age at which the students come up, a majority of them being still boys, as well as in

the imperfect preparation many have previously received. Those not familiar with the system will find this difficulty forcibly put by Professor Blackie in his recent letters to the *Times* on "The State of the Scotch Universities." Of the ways in which it is usually met, he says:—

"The professors in the faculty of arts having to deal with such an insoluble problem as teaching mere boys academically, must adopt one of three courses. Either they teach up to the highest mark of their supposed academical dignity, and then they fly over the heads of their scholars, and are not good teachers; or they let themselves down to the lowest level of their students, and sink the whole academical character of their business; or they attempt to do both in a hasty, bungling sort of way, and get up a fair show of success, satisfactory enough to our country Presbyteries, the only parties hitherto who took any regular cognizance of what was doing at our seats of learning. Those who adopt the first course sustain the reputation of the university, and send its fame abroad over the empire, or even sometimes over all Europe, as the late Sir W. Hamilton did; but the latter two courses are those which the necessity of the case generally produces, and the professors are thus systematically obliged to tone down the whole style of teaching from its proper academic level."

Though this description of the general state of things is correct enough, the account given of Sir William's teaching is by no means accurate; indeed, it contradicts itself. Sir William certainly taught academically, but he did not in the sweeping way here stated, "fly over the heads of his scholars." If so, how was it possible, through his lectures, none of them being published, for him to "uphold the reputation of the university, and carry its fame over the whole empire, and even over Europe?" The truth is, philosophy *must* be taught academically, that is scientifically, or not at all. A professor of Humanity or Greek may, if he chooses, become a schoolmaster—teach the mere elements of grammar with extracts from Xenophon, instead of lecturing on Æschylus, Thucydides, or Plato—and still do something. But a professor of Philosophy cannot "let himself down to the lowest level of his students;" he must raise them above this, or be content to do nothing. They come to him unprepared, unused to thinking, it is true; but his very business being to awaken thought, this is at once the condition and the test of his success. The sciences he has to teach being pre-eminently

reflective, whose elementary facts ever can only be recognised by reflective effort, demand on the part of the student, as the condition of acquiring any, even the humblest acquaintance with them, some independent exercise of thought. Nor can the teacher of philosophy follow the second course suggested by Professor Blackie without, in effect, renouncing his work. It is true, the attempt at such a compromise was formerly made, and perhaps still may be, in some philosophic chairs, by converting the work of the class into a kind of expanded Pinnock's Catechism, consisting of elementary questions and worthless answers, barren definitions, arbitrary divisions, meagre explanations, trivial problems, often mere verbal quibbles, and small but incessant exercises, all of the same feeble, memoriter, and mechanical kind; but of course this is not teaching philosophy at all. Such a system, though lauded as perfect by the unthinking, from the show of ceaseless activity it presents, is utterly worthless in every point of view. The information given is not worth having: the process of acquiring it only exhausts and irritates, instead of strengthening the mind, being an endless repetition of the same weary round—a mill-horse course of constant action and no progress; while the result of the whole is equally worthless, leaving to even the best scholars only a few empty forms and isolated notions, which though sometimes perhaps, under the multiplying mirrors of imagination, presenting, like the bits of broken glass in a kaleidoscope, a deceptive appearance of system, have in reality not the least particle of science.

The plan, therefore, represented by Professor Blackie as the common one, is scarcely possible to a teacher of philosophy worthy of the name; and however possible, it is quite certain that Sir William Hamilton would never have dreamt for a moment of adopting it. He knew too well the true end of university teaching, and the value of his own science in relation to that end, to think of attempting any such weak and suicidal course. Born, like every great philosopher, a teacher, he had carefully studied the various systems of tuition pursued both in ancient and modern times, and the best means by which the ends of higher education may be realised. Education is, in fact, only an applied philosophy; and Sir William early vindicated the practical character of his intellect

by devoting himself to the cause of educational reform. Next in value to the service he rendered the Philosophy of his country by placing it on a scientific basis, is the work he thus accomplished as the champion of liberal Education. Looking through the list of his reviews, it will be seen that the educational articles are far more numerous than even the philosophical. They were all written before his election to the chair; and they strikingly prove the depth and earnestness of his convictions on the subject. In opposition to the growing tendency of education to become more narrow, sectarian, and exclusively professional, he here recalls to view the old type of catholic culture, and shows what an educated gentleman should be. He urges continually the supreme importance of what is truly called liberal education, which, regarding the student as an end to himself, not simply as an instrument of some professional dexterity, seeks as its first concern the full and harmonious development of his whole nature. It is in connection with this end, as the best gymnastic of the mind, that Sir William so powerfully defends the study of philosophy. The mere knowledge gained in such a course is regarded as quite subordinate to a higher purpose—the evolution of mental energy, the attainment of intellectual strength. In a word, philosophy rightly taught is advocated as the best instrument of liberal education. It may be added, in passing, that Sir William's efforts were not in vain, with regard either to university reform in general, or the special means by which it might be best secured. The changes recently effected in the English universities may be traced directly to his influence. Long before these changes were seriously agitated, he directed public attention to the subject by contrasting, in the pages of the *Edinburgh Review*, the degraded and inefficient state of those seats of learning with the higher standard and nobler type of training from which they had fallen, contending, with an unanswerable fulness of knowledge and force of logic, that the basis of academic instruction should be broadened, the standard raised, and the restrictions which narrowed the action and weakened the power of the universities as national institutions finally removed. These powerful papers roused the attention of earnest men, such as the late Dr. Arnold, to the importance of the question; and through the efforts of minds

thus awakened, a measure of reform has at length been carried into effect. The spirit he evoked is still working in the Scotch universities; and notwithstanding the obstacles to be encountered from both friends and foes, will eventually issue in their reform. Nor was the eloquent defence of his own science, as a most important branch of academic training, in vain. The study of philosophy is reviving at Oxford, a tripos of Moral and Political science has been established at Cambridge, and every new college that is founded, either at home or in the colonies, has now its chair of Logic and Metaphysics.

It was not to be expected, therefore, that Sir William Hamilton would falsify by his own example the precepts he had laboured so long and earnestly to enforce. In carrying out his views of philosophic training, in a Scotch university, he had indeed to encounter difficulties arising not only from the early age at which the freshmen enter, but from the false position which the chair of Logic and Metaphysics holds in the curriculum, being placed at the beginning instead of at the end. Still there was no room for hesitation, really no choice; and he determined at once to secure the ends of such training for even a minority, rather than fail with all,—the inevitable result of the mixed and superficial system already referred to. In his letter to the patrons offering himself as a candidate, he says emphatically—"I have only further to repeat in general, what I have formerly more articulately stated, that in the event of my appointment to this chair, I am determined to follow out my convictions of the proper mode of academical tuition; that is, I shall not only endeavour to *instruct*, by communicating on my part the requisite information; but to *educate*, by determining through every means in my power, a vigorous and independent activity on the part of my pupils." This purpose was faithfully fulfilled in regard to each of the objects referred to,—the former by the course of lectures expounding the sciences to be taught, the latter by the system of class discipline pursued. In the scientific exposition Sir William for the first time divided the subjects of the chair, devoting a separate course of lectures to each. Under the old meagre system of elementary teaching, both and much more than both, had been professedly included in a

single course; but with only an hour a day it was impossible to do this without sacrificing at least one of the ends in view—the science, or the discipline; and Sir William, therefore, extended the course to two years, taking Logic one session, and Metaphysics the next. The lectures contained a full, but at the sametime, severely systematic and condensed exposition of each science, from the most comprehensive view of its nature and relations as a whole, to the finished exhibition of the smallest part. If the subject were Metaphysics, for example, the course began with seven or eight introductory lectures on Philosophy in general,—its nature, its causes, its methods, the dispositions with which it should be studied, and the parts into which it is divided; the latter point naturally leading to the special object of the course—Psychology, or the science of mental facts. The nature of Consciousness, as the essential ground or condition of the science being explained, its phenomena were then developed in order from the lowest to the highest,—from the simplest facts of Perception, on through Memory, Association, Imagination, and Understanding, up to the highest principles of the Regulative Faculty, Reason, or Common Sense. In the logical course, after a similar but shorter introduction on the general divisions of philosophy, in which the place of Dialectic in relation to the other branches of mental science was determinately fixed,—followed a special introduction considering rapidly in order the nature, the value, the divisions, and the history of Logic as the science of dianoetic laws. To the definition of the science succeeded a detailed statement and criticism of the laws of thought on which it rests; and from these the science was developed,—so perfectly that the presence of the fundamental laws might be easily traced and recognized in the remotest detail of their application. Indeed, the striking feature throughout was the clearness, strength, and rigorously scientific character of the whole exposition. Sir William never used a common word in a limited or special way without marking off the precise sense in which it was employed; never introduced an unusual or technical term without giving an exact account of its meaning; never gave a definition without fully unfolding its contents, or attempted a division without explaining the principle on which it proceeded; never, in fine, advanced a

step that did not naturally follow from what had gone before, and conduct to what came after; so that if a pupil had any faculty of attention at all, he might without much difficulty keep abreast of the lectures, and in the end gain both a clear and distinct idea of the whole course. It was, in fact, throughout a splendid illustration, not only of order, but of the highest scientific Method, the parts being connected together in no accidental or capricious way, but by the force of an inward law whose spontaneous action gave organic unity to the whole. The very effort of watching the daily development of such a method was in fact, to an intelligent student, a positive and highly effective training in the philosophic art of thinking well.

The active discipline of the class consisted of exercises and examinations, the latter of two kinds—compulsory and voluntary. The compulsory, which generally occurred four or five times during the session, was an examination (in the lectures) of the whole class, when any member was liable to be called up, and generally before the end of the session all were actually questioned once or twice at least. Latterly, however, this fell rather into disuse, so that often the voluntary, which had always been the principal, remained the exclusive form of examination during the session. This examination was of two kinds, or rather in two subjects,—the lectures, and what was called "additional information," *i. e.*, subjects connected with the lectures. The examination derived its name from the fact that it was quite optional whether the students took it or not; the order in which those who offered themselves were examined being determined in the most impartial manner, in fact, by lot as follows:—On the examination days, which were Tuesday and Thursday—Monday, Wednesday, and Friday being lecture days—the members of the class were requested to sit in alphabetical order according to their names, the benches being lettered for this purpose; on the table before the professor, at the commencement of the hour, was placed a jar (by courtesy a vase or urn) containing the letters of the alphabet, printed in large type on rounds of mill-board, in fact, a child's alphabet with highly coloured pictures at the back of the letters, from "A was an apple," to "Z was a zebra;" these Sir William mixed thoroughly together in the jar, and

then taking the uppermost one, say W, held it before the class, inquiring whether any gentleman in W was prepared to undertake the examination, whereupon Mr. Walker, or Watson, or whatever the name might be, rose, bowed to the chair, and commenced at the point where the last examination left off. The work of preparing for these examinations was by no means slight to those who did it regularly and well. For the lectures being so full of condensed matter, a mere outline would not do,—some important points being necessarily left out in any abstract the student might attempt; there were always three or four, and generally five or six lectures in arrear, any part of which he must be prepared to take up at a moment's notice, as it was of course impossible to know when and where he should be called, or whether he should be called at all. Finally, the lectures he was thus required to have at his finger-ends often contained long series of minute and extremely subtle discriminations, such as the thirty-three distinctions between Mediate and Immediate knowledge in note B, and the thirty-one between the Primary and Secondary qualities of body in note D of Sir William's edition of Reid, both of which, I remember, were included in the lectures the year I attended the metaphysical course,—to say nothing of exercises in Syllogistic, such as concrete examples of every valid Mood under the old and new systems, and the like, which naturally occurred in the logical course. It was useless for any one to attempt the examination trusting to memory alone, as some men are said to do with Euclid; for in the first place, it was almost impossible to remember the lectures without understanding them; and in the second, one's knowledge was continually tested by cross-examination on the more difficult points, in which the mere memoriter men were sure to break down altogether. The effort of thorough preparation was, however, a most invigorating one to those who made it, not only from the mastery of the subject induced, but from the habits of clear mental discrimination and exact verbal precision it necessarily helped to form. The second voluntary examination in subjects connected with the lectures, though not so arduous as the first, was a very useful, pleasant, and at times even entertaining one. The subjects brought before the class

in the space of an hour were often miscellaneous enough, as the only restriction imposed—that the "additional information" should refer to points touched upon in the previous lectures—still left a large margin for the diversities of individual choice. The pupil might, for example, give the views of any philosophic writer on questions directly or indirectly discussed in the lectures, such as the division of the mental powers, the distinction between Art and Science, the theories of Perception, etc.; the history of a philosophic word such as Category, Predicament, Concept, Consciousness, etc.; the distinction between related terms, as Hypothesis and Theory, Discovery and Invention, Observation and Experiment; a short biography of any philosopher, poet, critic, historian, or celebrated man mentioned in the lectures; or, finally, state difficulties and speculations of his own on points arising out of the previous exposition. Sir William strongly encouraged all such manifestations of interest in the subject of the prelections, especially, perhaps, the last; and from the greater freedom thus allowed, this examination brought the students more directly into contact with the Professor than any other class exercise. After the student had finished his account, whatever it might be, Sir William would inquire what books he was reading, give valuable hints as to the best course of study, and often supplement the information brought by particulars derived from the vast store-house of his own learning. The examination thus acted as a powerful stimulus and guide during the whole course of philosophic study.

The exercises of the class were short essays, restricted, like the foregoing examination, to subjects connected with the lectures, and generally prescribed every fortnight or three weeks. Extracts from these essays were regularly read to the class by the writers, each student being allowed five minutes (measured by a sand-glass) for this purpose—the time being extended at the option of the Professor, who generally criticised the more important exercises. While only a fourth, or at most a third, of the class attempted the voluntary examinations, a large majority of the members wrote essays of some sort or other. In addition, however, to the regular class exercises, essays on special subjects were now and then prescribed to the competitors for prizes, which were

also of course read to the class. Indeed it was a part of Sir William's system, that all the class work should be done in public; and as the essays were read in public, so the examinations were all *viva voce*, and before the whole class. Each member had thus an opportunity of deciding the relative position of the prize competitors; and at the end of the session the honours of the class were awarded to the successful candidates by the votes of their fellow-students.

Such is an outline of the plan, simple enough it will be seen, pursued by Sir William Hamilton. What was the character it assumed in his hands,—vitalised by his presence and influence? It became a discipline instinct with vigorous life, rousing in turn the intellectual energies of his pupils to new, strenuous, and prolonged activity. To all who engaged in the work, and many who did not, the philosophical session in the university remains the most memorable era, not only of their college course, but of their whole educational life. The effect on first entering the class was perhaps all the more striking from the force of contrast, much in the university around acting as a foil; but soon, as already intimated, the absorbing interest of the subject, expounded by such a lecturer, kindled an enthusiasm, which converted the curious listener into an ardent disciple, kept his attention fixed with unflagging zeal to the end of the course, and sent him from the university eloquent in the praise of its greatest master. In this way, the fame of the lectures, as Professor Blackie says, extended not only through the country but over Europe; attracting students to the class from the Continent, as well as from every part of the United Empire.

What, then, did the student find on arriving in Edinburgh, what did he see and hear, and what was the general influence of the place as a school of learning and philosophy? He came, we will suppose, chiefly to hear Sir William Hamilton, and having learnt from the Highland porters, who stand as animated, though not always intelligible guide-posts at the corners of the streets, the direction he must take, pushes forward to the Old Town and presently finds himself under the massive gateway entering the spacious quadrangle of the University. The college buildings around—lecture-rooms, reading-room, library, museum, senate-hall, etc.,

are large and built of a fine grey stone, that shows well against the blue sky on a clear day; a broad stone terrace runs round the square, with balustrades and flights of steps leading into the gravelled court below; the style of architecture is the Romanesque, in which Inigo Jones and Sir Christopher delighted; but notwithstanding the imposing size and noble height of the buildings, the clustered pillars, and garlanded heads of sacrificial bulls that adorn them, the quadrangle strikes him as cold and stony, if not forbidding and severe. Turning to the grave official in the blue coat with the red collar, always to be found at the entrance, he is directed to the Matriculation Office, and on payment of the guinea fee receives an entrance ticket. A look into the library shows it to be cold and cheerless as the quadrangle, chiefly remarkable withal for the total absence of books, not a single volume being visible. The reading-room beyond scarcely relieves the impression, as it is found to be a long narrow barrack-like place, with large windows, bare benches, and a most empty unfinished aspect. The result of a tentative visit to some of the earlier classes is hardly more satisfactory; and after an hour's sitting, it is a relief to hear the college bell ring cheerily out, and join the crowd of liberated youths who brighten the empty doorways with sudden life, and fill the silent square with the sound of mingled voices and hurrying feet. The bustle, however, is only for a minute or two; presently not a straggler is to be seen—the multitude is reabsorbed, and all again is still. Meanwhile the Logic hour having arrived, he joins a portion of the crowd ascending the stairs to the left in the north-east angle of the building, and being assured by a curt monosyllable from the stern janitor at the door, that he is right for the Logic class, enter a spacious, square, well-lighted room, with a double row of benches, ten or twelve deep, rising from the floor half-way to the ceiling. The north side of the room is full of windows looking out on the Old Town, through which may be seen, in outline, over an intervening prospect of chimney-pots, the grey ridge of the tall High Street houses, with the spire of the Tron Church rising up at the end. On looking round the class-room several things strike him as rather peculiar. In the first place the

benches are all lettered in alphabetical order, the thinly-peopled letters, such as U, V, having a bench between them, while the more populous such as M (from the number of *Macs*) require two. Then in front, over the chair, and just below the ceiling, his eye is arrested by a large board painted green, with a gold border, bearing two inscriptions, one Greek the other English (in gold letters on a green ground), the latter being the well-known motto prefixed by Sir William to his edition of Reid's works—"On Earth there is nothing great but Man; in Man there is nothing great but Mind." Below this are a number of long narrow boards, ranged in order on a line, with dates of different sessions, and lists of from twelve to twenty names, in gold letters on a green ground as before. These are names of students who have taken class prizes in successive sessions since Sir William has occupied the chair. On the wall opposite are other boards of the same kind, only not so numerous, and with fewer names —lists of those who have gained the summer prizes offered by the Professor for extra study and special essays. On either side of the chair are black boards, one which moves up and down in the ordinary way, another which opens out and is like a door on its hinges, and a third which does neither, but stands out four-sided like a truncated pyramid on a tall pedestal of its own. This mysterious instrument, which is not unlike the trees seen in old sampler work, or the cropped yew and box of country gardens, is looked upon with a certain feeling of awe by casual lady visitors in the vacation, and timid students on first entering the class, as probably a *novum organon* of philosophy, a syllogistic machine, or perhaps a dwarfed and hodded specimen of Porphyry's tree. On looking round he sees the room is filled with students of all ages, and apparently of all stations, the majority, however, being quite young. There is nothing particular to remark, except that a more than usually large number seem preparing to take notes. The five minutes' grace for assembling being now up, the door behind the chair opens, William, the inevitable janitor, appears carrying a light reading-stand, with the lecture open upon it, and having placed it on the table before the chair, moves aside; and Sir William entering bows to the class, takes his seat, and immediately begins—"Gentlemen,

in my last lecture I considered," etc. For the first few days on the entrance of the Professor an attempt at a cheer is generally made by some of the younger members of the class, who, fresh perhaps from snow-balling one another, are affected by a strong determination of blood to the toes, and, not being particularly philosophical, like to use their heels better than their heads; but this being discouraged as unacademical, soon ceases altogether, and the lecture proceeds in silence amidst the marked attention of the class.

Sir William Hamilton's manner naturally struck one on his first entrance by its native dignity, perfect self-possession, and genuine courtesy; but soon the attention was irresistibly attracted to his person. It was impossible, indeed, not to be impressed with the commanding expression of that fine countenance and noble bust; the massive well-proportioned head, square, and perfectly developed towards the front; the brows arched, full, and firmly bound together, with short dints of concentrated energy between; the nose pure aquiline, but for its Roman strength, and a mouth beautifully cut, of great firmness and precision, with latent sarcastic power in its decisive curve. But the most striking feature of all to a stranger was Sir William's eye; though not even dark hazel, it appeared from its rare brilliancy absolutely black, and expressed, beyond any feature I have ever seen, calm, piercing, sleepless intelligence. It was in a peculiar degree the self-authenticating symbol of an intellect that had read the history, traversed the unknown realms, grasped the innermost secrets, and swept with its searching gaze, the entire hemisphere of the intelligible world. Though naturally most struck with this at first, one soon found that it but harmonised with the perfect strength and finish of every feature, nothing being weak, nothing undeveloped in any. Whatever the previous expectations of Sir William's appearance might be, they were certainly realised, if not surpassed; and however familiar one might afterwards become with the play of thought and feeling on that noble countenance, the first impression remained the strongest and the last—that it was perhaps altogether the finest head and face you had ever seen, strikingly handsome and full of intelligence and power. When he began to read, Sir William's voice con-

firmed the impression his appearance and manner had produced. It was full, clear, and resolute, with a swell of intellectual ardour in the more measured cadences, and a tone that grew deep and resonant in reading any striking extract from a favourite author, whether in prose or poetry—from Plato or Pascal, Lucretius or Virgil, Scaliger or Sir John Davies, whose quaint and nervous lines Sir William was fond of quoting.

The new comer naturally listened to the lecturer with interest and some curiosity, knowing perhaps little or nothing of the subject, and having his own misgivings, notwithstanding Sir William's fame, whether anything could be made of it or not. After hearing a few lectures, the impression produced was probably one of mingled surprise and admiration, wonder and delight. The subject had been described as abstruse. He fancied it must be dark, mysterious, and uncertain, and that perhaps it would be impossible to understand the lecturer at all. On the contrary, the exposition was found to be clear, forcible, and even vivid in its distinctness—the thought striking the intellect as sharply as near objects do the eye on a bright day; and the style a perfect mirror of the thought—exact to a nicety, every word the right one, and each in its place, giving in fact quite a new idea of the precision of which language is capable. This naturally excited surprise, and awakened unexpected admiration. The lecturer's whole tone and manner, too, at once powerfully stimulated curiosity, and inspired confidence. The pupil was conscious of breathing a fresh intellectual atmosphere as bracing to the mind as sea air to the body, and already began to feel a new and reviving sense of elasticity and power. The appetite for knowledge was suddenly sharpened, and he felt at the same time that he had found one who could satisfy it to the full. It is difficult to say, exactly, how this feeling of exhilarating confidence, of glad but undefined expectation, was produced; partly, no doubt, by what was said, but chiefly from the manner of the speaker. There was much in it strictly personal;—the instinctive feeling naturally awakened in listening to one who spoke with the serene insight and authority of a master both in history and science. When, for example, he referred to the elder philosophers, the

sages who walked with their disciples in the Lyceum and the Grove, who taught in the marble stillness of the Porch, or amidst the green shadows of the Garden, it was at once perceived that the lecturer was speaking of thinkers he had held familiar intercourse with, as an equal, even in their abstrusest walks; nay, more, that having accompanied them to the furthest point in the fields of speculation, and looked with clear intellectual vision from the last Pisgah height, where their eye grew dim, and their strength began to fail, he could at once recognize and complete the imperfect description they have left us of objects whose form and outline fell obscurely on their fading sight. The same effect was produced in dealing with the phenomena of the science. While expounding the mental faculties, their order, laws, and development, it was felt that the speaker had verified for himself every fact referred to—that he spoke but of what he knew, and testified of what he had personally seen. Not, of course, that the listener understood and recognized at once everything spoken of, but this was obviously not from any want of clearness in the description, but simply because the right point of view for seeing the object had not yet been gained, while, at the same time, there was the clear conviction that by following the prescribed course, he would soon be able to see and judge for himself. Thus the first effect produced in listening to Sir William Hamilton was a feeling of mingled confidence, admiration, and delight.

When, becoming familiar with the manner, the attention of the student was concentrated on the matter of the lectures, and the objects exciting the new feeling of wonder gradually grew more distinct, the first conviction was, that he had entered into an entirely new world, wholly different from the world of men and the world of books which he had hitherto known. And what struck him most of all probably, was the fact that it really *was* a world—a veritable Cosmos, with facts and laws of its own, with phenomena, processes, and results not less vast and varied, harmonious, and sublime, than the sensible facts and physical laws of the universe,—a world within as full of wonder and mystery, of secret activities and unknown powers, as the material earth and heaven around and above us. It was soon discovered,

moreover, to be a region, in exploring which he needed and could receive but little help from others; the objects of research and the instruments of investigation, the observer and the phenomena to be observed, being alike within. He awoke to the sudden consciousness that the living spirit moving amidst the clouds of passion, and behind the veil of innumerable, but often unconscious activities, was far more full of strange and prophetic inspiration than the fabled oracle of Delphi, while the inscription on the temple of the one was the true key to the mysteries of the other—γνῶθι σεαυτόν—know thyself. And he was powerfully impelled to acquire this self-knowledge, because it in turn would obviously furnish the key to the vaster world opening before him in the dawning light of a new experience. The visible motto of that world—"On Earth there is nothing great but Man; in Man there is nothing great but Mind"—seemed at once to reverse the previous views of history and life. All manifestations of mere material strength appeared only as the rude mechanical servants of higher masters—the intellectual forces that really move and mould the world. The grand tragedies of history—revolutions that filled continents with strife and bloodshed—were but the active representations of a drama previously rehearsed in the speculative opinions of the few, and originally, perhaps, elaborated in the prescient intellect of an obscure and solitary thinker. The chief figures of this drama—kings crowned with regal pomp amidst worshipping multitudes—faded into insignificance before the silent monarchs, whose unrecognised decree had, in the end, broken their sceptre and given their empire to another,—

> "The great of old!
> The dead but sceptred sov'rans, who still rule
> Our spirits from their urns."

The relative value of historic events was changed. Alexander was thought of far more as the pupil of Aristotle than as the conqueror of the world; Theodoric as the executioner of Boethius, rather than as the first Gothic ruler of the Roman empire; and Charlemagne as the reputed friend and patron of Scotus Erigena, rather than as the warrior sage who had won Europe by his sword and kept it with his pen. Ancient laws and institutions were looked upon simply as way-marks of opinion

—curious and valuable specimens of obsolete and crystallized thought. Any historical fact, however imposing, was of little value until its place on the intellectual chart had been traced and verified through a recognition of the underlying law. In a word, the student begins to open his unaccustomed eyes in what the elder thinkers call the "intelligible world."

It was soon discovered, moreover, from the lecturer's method, that this new world was, in the strictest sense, the object of science—that its facts could be observed, and its laws known. And if the science were thus possible, it must obviously, when achieved, be superior to all others—must in a sense be inclusive of all others—at once a key to the past, a guide in the present, and a prophecy for the future. It would necessarily explain every special history, interpret every old form of religion and government, every successive phase of past civilization, by reaching the psychological laws whose development they reflect. It must throw a flood of light on the complex forces working amidst the crowd and dust of actual life, and powerfully help to solve the urgent social problems arising from their blind or misguided activity; while the prospect opened for the future was inspiring in its boundless extent, as it was obviously impossible to measure the powers or limit the development of humanity. The true clue for exploring the intellectual world being once found, it was natural to believe that future progress would be sure, rapid, and almost limitless; and this clue was found in the rigorously inductive method of observation and analysis pursued in the scientific exposition. Nor did the treatment of history in the lecturer's hands at all diminish one's confidence in the certainty of the science. True, the speculations of illustrious thinkers were assailed without pity, and remorselessly destroyed. Sir William's path was, in the words of one of his critics, "emphatically over the wreck of systems which he demolished as he went;" but, strange to say, this but strengthened instead of weakening confidence, because it was clearly seen to be done upon principle. A tithe of such destructive criticism from a teacher of less power, might have left one utterly sceptical, while Sir William's inexorable dialectic inspired the fullest trust. For though much was destroyed, more was left. The indurated hull of system

was shattered only to set free the germ of truth it contained; and the severest criticism but illustrated the maxim of Leibnitz, that philosophers are true in what they affirm, false in what they deny. It was continually shown that every error is only a truth abused, and all partial systems but contributions towards a perfect science. The theories of elder philosophers that lay isolated, barren, and far asunder on the fields of speculation, came like the dry bones in the Valley of Vision at the voice of the prophet, marshalling to their place, bone gathering to bone, sinew to sinew,—the scattered fragments growing into form, and waiting only the breath of higher inspiration to appear as a living whole. The entire exposition thus tended powerfully to confirm the first impression, strengthening at every step the rising belief in a new and noble field of investigation, offering to the zealous explorer results of the highest certainty and value.

Such teaching naturally produced in the pupil the most vigorous and intense intellectual activity. A desire to pursue the new paths opened seized him with the force of a passion; and no effort that contributed to this end seemed wearisome. Books that might fairly be considered hard and dry, flavoured by the appetite brought, were read with avidity and positive enjoyment. Preparation for the class examination scarcely seemed an effort. Conscious of new powers, he delighted in their exercise; and learning the use of new weapons, it became a pleasure to test their value, and at the same time increase his own skill by constant practice. This naturally showed itself in a tendency to theorise and debate. He rapidly generalised the objects of his knowledge, gathered all new facts into principles, worked out provisional solutions of the problems that crossed his path, and most likely involved his friends and companions in perpetual discussions. Any outlet, in fact, for the superfluous energy was welcome. It might perhaps be thought that devotion to metaphysical pursuits would estrange one from the healthy activities of life, and the self-introspection induced naturally create a morbid state of mind. Not in the least. On the contrary, the vigorous exercise of the intellect produced a sympathetic activity through the whole nature. All life became more brilliant, mysterious, and intense. Even

physical exertion acquired a new zest and relish. The pleasurable reflex of sustained mental effort gave vigour to the student's pulse and elasticity to his step, as he breasted the ridge of the lion's nose in climbing to the top of Arthur's Seat; or, skates in hand, brushed through the frozen reeds to test the strength of the ice on Duddingstone Loch; or walked up from Newhaven in the winter moonlight after a breezy sail on the blue Firth. Saturday excursions had a double object, or rather effected a double purpose. He explored at once the outlying country about the city, and the new problems opened in the class, discussing, it may be, Malebranche and Berkeley on horseback, while cantering through Dalmeny Park, to bait at the Royal Ferry beyond; or debating the Freedom of the Will as he continued the journey through devious and copse-fringed country ways, till rattling over the rough causeway, the argument and ride drew rein together in the silent streets of Linlithgow. Here, refreshed with bannocks and usquebaugh, the chances were, that leaving Hobbes and Edwards to their fate, and yielding to the influence of the place as he climbed the mouldering turret-stair, and sat on the roofless walls overlooking the quiet Loch, he would break an argumentative lance for Queen Mary in the palace of her birth; and in the evening probably gallop back through the frosty air to attend a meeting of one of the Associated Societies, and take part in a debate on the Perception of Beauty, or the Foundation of Morals. In pedestrian trips too, along the wooded depths of Hawthornden to Roslin Chapel, or across Corstorphine Hill, or through the peat-hollows of the Pentlands to Habbie's Howe, parties of the more active men, who were generally practical disciples of the Peripatetic Philosophy, would often surprise the simple rustics at way-side inns by animated discussions on such eerie subjects as the Genesis of Causality, and the Categorical Imperative.

All nature was seen in a new light. Philosophy is said to be the express antithesis of poetry, and its pursuit is commonly supposed to extract the romance from life; but instead of this, the veil of commonplace seemed taken from the face of familiar objects, and one looked forth on a virgin creation. We live, says Wordsworth, by wonder, admiration,

and hope, and the new birth of these feelings was a fresh *elixir vitæ*. It was not without a sensation of awe that, looking on the changing light of dawn and sunset, sea and sky, the student reflected that this rich and varied painting was less substantial than the melting outline of a cloud, the glory of colour being neither in the object, nor even in the eye, but in the mind; that, perhaps, indeed, there was not in any true sense an object at all, the whole material universe being but a divine thought of the ever-present Godhead, "in whom we live, and move, and have our being." Every system of philosophy became to the awakened intellect a new sense of vision, through which to behold the world. It was not only to be read of, but realized, not only known, but seen and felt as well. He necessarily tried to look at the world through the very eyes of the thinker who had elaborated such or such an account of it, and thus regarded, no system seemed utterly contemptible. The airiest touched reality at some point, and the most abstract was not without a human element. Even the rude physical speculations of the early Greek philosophers were redeemed from absurdity; there were moments in which nature bore witness to their relative truth. The voice of a rippling burn between the hills, for example, or the face of the unquiet sea, as you sat musing on the rocks, would recall Thales, and serve to explain his thought; what was in his heart and brain when walking constantly on the shores of his island home, and pondering on the many ways in which the mighty element before him ministered to the wants of man; the dew that refreshed the pastures, the rain that filled the valleys with corn, the springs without whose reviving draughts both man and beast perish; the sea at last acquired such power over his whole thought and life that he was led to generalize the essence of water or moisture as the principle of all things. So, too, not to multiply instances, with the air and fire theories of Anaximenes and Heraclitus, the musical numbers of Pythagoras, and many a later and finer form both of idealism and materialism. Thus the universe appeared to these thinkers, and so it was still to be seen through the glass of their realized thought.

Common life was invested with new interest. The most

familiar objects seen under fresh aspects and relations regained the charm of novelty. Illustrations of newly recognised mental laws were detected in every thing around, in the prattle of children, the wrangling of street boys, the gossip of old women, the maudlin or savage songs of tipsy men, no less than in the spontaneous or reflective activity of the beautiful and good. And as in everything around, so in everything within. The most ordinary mental processes and impressions continually suggested new problems of interest. Fire-light shadows on the wall, the sound of an organ below the windows, the scent of a flower, the colour of a riband, the tone of a voice awakening a crowd of recollections, would determine sudden quest for the special law, or laws of association that had thrown open the doors of memory, and set them free. Even in dreams, self-reflective activity was not wholly lost, and in one's efforts to explore the fairy realm of psychology, every night became for entertainment an Arabian one, while the morning brought in fresh vividness and power, the conviction, "How wonderful is sleep!" The inquirer lay down on the threshold of an enchanted land, and awoke perhaps after the first light nap, to trace if possible, the delicate links between the last sensible impressions and the first creations of fancy; or in the morning roused into sudden consciousness, marvelling through what finer avenues than those of ordinary sense the pale objects of the dawn had pierced the thin veil of dissolving slumber, and mingling in the world of dreams, confused the gates of ivory and horn. Attention was in this way constantly arrested by what was going on within, and every group of mental phenomena furnished questions of its own, which it soon became a pleasurable exercise to explore.

Thus all within the sphere of knowledge,—poetry, history, nature, life,—furnished materials for the use of the newly-awakened powers. Everything was noted and analysed, often rudely enough of course, sometimes perhaps with partial success; but in any case the result was as nothing compared to the value of the exercise. The end to be attained was not so much knowledge as power—strength of faculty derived from constant use, and the whole training tended to secure this. All education, indeed, is in the last resort self-

education; and the discipline that most powerfully stimulates the mind to independent effort is the very highest. Judged by this standard, at once the truest and most severe, it may be said without fear of contradiction, that there was at that time no such teaching as Sir William Hamilton's to be found in any university within the four seas. His educational practice was thus, the express correlative of his theory; the work he accomplished—that of kindling the enthusiasm of the students in the subject taught, and exciting them to a course of high and prolonged mental activity—being exactly what he had from the first proposed. He was a true teacher of the noblest type, whom numbers will have to thank all their lives long for having first stirred the faculty of thought to vigorous exercise, and given them a sincere and lasting interest in the objects to which it was directed—the sciences they learned from his lips.

Personal intercourse with Sir Wiliam confirmed and deepened the influence of his public teaching. His splendid endowments, original philosophic genius, rare elevation of character, and heroic love of truth, were apparent to all in his prelections from the chair; but in private these were found united with the most unassuming manners, a profoundly earnest yet genial nature, and true depth and cordiality of feeling. Always accessible to his students, none ever found him preoccupied or engaged when they entered his private room to submit a doubt, ask a question, or make a request. He listened, not only with patient courtesy, but with real interest, to the detail of their elementary difficulties, adapted his explanation to their point of view, encouraged and guided their inquiries, and freely offered them any assistance in his power,—the use of his invaluable library even to those wishing to pursue an extended course of private reading; so that the admiration which the peerless intellectual qualities of the Professor as thinker and critic had excited, was soon blended with feelings of personal reverence and regard for his noble simplicity of character, high moral worth, and true kindness of heart. These feelings became stronger and deeper with the opportunity of knowing him more intimately. Sir William Hamilton, indeed, appeared to the greatest advantage in the unrestrained intercourse of social and domestic life.

Devoted to severely abstract pursuits during the hours of study, he enjoyed the fullest relaxation amidst his family and friends, entering with hearty relish into all home pleasures and pursuits, keenly appreciating a good story or capital joke, interesting himself in the occupations of the young people about him, nay, even sympathising with the children, delighting in their toys and books, and not unfrequently sharing with them their games, tales, and fireside amusements. But of Sir William in this relation the space already occupied warns me that I cannot now speak.

Nor is it possible here to give, even in outline, the result of Sir William Hamilton's labours for the advancement of his science. One point only, that has been already frequently referred to, and is in itself of the highest importance, may be noted in closing,—that of Method. By what he accomplished in this department alone, Sir William has contributed more to the true progress of philosophy than any single thinker for a thousand years. And why? Because a true method, faithfully pursued, is the one condition of all real progress. The complaint is continually brought against mental science, that, instead of advancing, it moves in a circle, the same theories perpetually appearing, vanquishing each other, and reappearing, like the shadowy heroes of Valhalla. To a great extent this complaint is just, nor is the reason far to seek. The true method of procedure has rarely been recognised by philosophers, and never at any time consistently followed. Strange as such a statement may perhaps seem at first sight, it is nevertheless true; and if we reflect a little, not after all so surprising. Philosophy is still quite young,—indeed only just emerging from the era of Poetry into that of Science. The earlier thinkers who attempted the problem of existence were too much absorbed by the object of pursuit to reflect on the way they travelled, and too enamoured of the first partial solutions that rewarded their efforts, to ask with judicial calmness, whether they were satisfactory and complete. Thus their systems and theories are little better than romances of the speculative intellect,—philosophical works of fiction founded upon fact. Some, perhaps, may fairly claim to be considered historic novels, from the amount of truth they contain, but none are History, much less Science. The position they occupy

may be explained in a few words. All true science being the explanation of what *is*, its basis must ever be laid in *existence*, which is ever given to the mind as a fact, and cannot be created or demonstrated, deduced or assumed. But instead of taking their point of departure in consciousness as the true ground of reality, and working on the facts of inward experience, all past thinkers, with hardly an exception, have started with some arbitrary assumption, abstract notion, imaginary proposition, or metaphysical dogma, and as the natural result of such a false procedure, have arrived at fallacious and hypothetical conclusions. This is the course pursued by all the philosophers of antiquity, Socrates alone excepted. He, it is true, appealed continually to consciousness, and sought to develope its contents; but this procedure is with him rather a personal art than a philosophic method, and is adopted for a special practical end, rather than in the interest of speculative science. Of the operose and gigantic systems elaborated by the schoolmen in the middle ages, it may be truly said, *Chimæra chimæras parit.* Their method is a metaphysical arithmetic from first to last,—a wonderfully ingenious game of complicated calculations, with notions for numbers, played withal *in vacuo*, where there is nothing to count. Descartes, with the true instinct of a strong and independent mind, swept away the whole of this barren speculation at once, and looking round for some basis of reality, said frankly, "Here am I, thinking, doubting, speculating; that is something to begin with at all events." In thus making Consciousness the point of departure, he had indicated the true method, but he went no further; he did not himself pursue the path pointed out, and his immediate followers developed from his principles systems as vast, visionary, and baseless, as any to be found in the history of speculation. Leibnitz, while recognizing the necessary facts of inward experience, still starts in his metaphysics with abstract notions, and his system of Pre-established Harmony is quite as romantic as the Cartesian doctrines of Divine Assistance, and Occasional Causes. Locke, though gifted with a fine natural spirit of observation, soon relapsed into system, and noted facts only as they supported his theory. But Hume having developed universal Scepticism as the natural result of such

a one-sided system, it became necessary for his opponents, both in Scotland and Germany, to take refuge in the neglected facts of consciousness. Dr. Reid, however, employs the appeal to consciousness, by a kind of natural instinct, as a happy controversial expedient, rather than as an instrument of science. Even Kant gets no further than the criticism of principles, still speaking of ideas rather than existences, and resting on intellectual postulates and necessities instead of on the true basis of reality.

Thus, the whole procedure of philosophy hitherto, has been either an assumption of principles, a criticism of principles, or at most, a capricious and immethodical appeal to facts. To Sir William Hamilton belongs the glory of having finally abolished this vicious system, by expounding with philosophical rigour and minuteness the nature and conditions of the one true method;—fixing the point of departure for philosophy in the facts of inward experience, and converting the appeal to Consciousness, hitherto at best so partial, fluctuating, and contradictory, into a scientific instrument of the utmost certainty and precision. The value of his "Dissertation on the Philosophy of Common Sense," in this relation, cannot be overrated. The true path being thus opened, it is reasonable to believe, that the progress of the science in future will be sure and rapid,—presenting a striking contrast to the tardy rate of advancement in the past. Such a belief the analogy of physical science abundantly justifies. As physical theories are earlier in the history of speculation than metaphysical, it was natural that physical science should first emerge from the labyrinth of subtle dialectics in which both were originally, and for so long involved. But even this is a comparatively recent event. Physical science is still in its first youth, no branch of it being yet two hundred years old; during the previous two thousand it remained under the dominion of systems, and was like Metaphysics, a mere logical romance. The most elaborate theories, starting from abstract principles instead of observed facts, could of course really explain nothing, could discover nothing; and instead of contributing to the progress of the science, remained wholly barren—at best, like the Ptolemaic astronomy, curious monuments of great but

perverse ingenuity. With the Revival of Letters came the dawn of a better method. Bacon, standing in that early light, clearly pointed out the errors which had hitherto prevented the progress of inquiry, as well as the road which all successful investigation in future must pursue; and modern science is the result of his method. Sir William Hamilton is the true Bacon of mental philosophy, and his method fully accepted and diligently followed, will here also break up the despotism of systems, and inaugurate the era of science.

All-important as the work thus accomplished is, it must not be supposed, however, that Sir William Hamilton did nothing more than fix the basis, and determine the scientific method of philosophy. On the contrary, unlike Bacon and Descartes, he rigidly pursued himself the course pointed out to others, and with the happiest results. The application of his method to the conflicting theories of Perception, given as a general illustration of its value, at once, in the doctrine of Natural Realism, sweeps away a multitude of one-sided theories, and relieves the science of a controversy which has divided it from the rise of speculation to the present day; while the more general results of that application, summed up under the Conditions of the Thinkable, furnish the scientific means of finally deciding other controversies equally celebrated. The principles of this higher philosophy—that of the Conditioned—have indeed yet to be appreciated; but it may be noted in passing, that the solution through them of the vexed question of Causality, though quite misapprehended by Sir William's critics, affords a signal illustration of their range and value. Pregnant hints of their application to other central problems of the science, are found scattered here and there in Sir William's writings. These hints now bitterly remind us how much philosophy has lost in the removal of the great master who alone could have perfectly unfolded their meaning. Once powerfully stimulating curiosity, they are of unspeakable value now as guides to the undeveloped thought of him who always spoke with authority, but whom we can hear no more. Though mere fragments they sufficiently show that no department of the science had been left unexplored, and enable us in a measure to imagine how catholic, harmonious, and complete Sir

William's exposition would have proved, had he been permitted to finish it. It was in publicly referring to this unfinished work a few days after Sir William's lamented death, that one well entitled to speak,—who, indeed, amongst Sir William's critics, has shown the profoundest appreciation of his philosophy,—paid a just tribute to his memory in the following striking words—words which, in taking leave of the subject, I am glad to repeat, and in which all familiar with Sir William's character and labours will most fully sympathise:—

"But this conception of philosophy," says Mr. Mansel, speaking of that which runs through Sir William's speculations, "interesting and important as it is, is fraught with painful recollections now. It reminds us that within the last few days we have had to mourn the loss of one, the labour of whose life was devoted to this very object, and whose contributions to a philosophy of the conditioned, fragmentary and incomplete as they are, contain the germ of nearly all that future research can articulately develope, and which none can hope to develope as he, if his life had been longer spared, might have done. For where now, among the philosophers of this or of any other country, shall we find such vast endowments of intellect accompanied by such a just appreciation of their limits? Where shall we find one with a tithe of his attainments, who will so consistently and with such authority proclaim the duty of a learned ignorance? Where shall we find one to exhaust, like him, the whole field of philosophical learning, and in the end to proclaim, as the moral and the motto of his whole teaching, 'Magna, immo maxima pars sapientiæ est, quædam æquo animo nescire velle.' Above all, in these presumptuous days, when human reason aspires to strip the veil from the hidden things of God, and to proclaim its own speculations as identical with the eternal movements of the Divine Mind determining itself in Creation, where shall we find a philosopher of such eminence and authority, to announce, as the surest ground of belief in the truth of a philosophical system, that its doctrines are in harmony with those of Revelation? It is not now the time to enter upon a fuller examination of the writings of one whose name hereafter will assuredly be reckoned among the greatest in the history of British Philosophy:—

> "His grave is all too young as yet
> To have outgrown the sorrow that consigned
> Its charge to it."

But the place of his early education may be allowed at least a

passing tribute to his memory; and if ever the time shall come, when the Philosophy of the Conditioned shall occupy its fitting place as the handmaid and the auxiliary of Christian Truth, voyaging through the seas of thought with the laws of the human mind for its chart and the Word of God for its polestar, among the fathers and teachers of that philosophy, most consulted and most revered, will stand the name of Sir William Hamilton.[1]

T. S. B.

[1] *A Lecture on the Philosophy of Kant*, delivered at Magdalen College, May 20, 1856. By Henry Longueville Mansel, B.D., Reader in Moral and Metaphysical Philosophy, Magdalen College, Oxford. J. and H. Parker.

CHEMICAL FINAL CAUSES,

AS ILLUSTRATED BY THE PRESENCE OF PHOSPHORUS, NITROGEN, AND IRON IN THE HIGHER SENTIENT ORGANISMS.

THE recent unexampled progress of Anatomy, Chemistry, and Physiology, has brought into startling prominence a problem which may be thus stated, "Why do certain Chemical elements or ingredients, rather than others, enter into the composition of Plants and Animals?" This question has probably been put to himself more or less clearly, by every considerate student of the Sciences named above, and has unconsciously guided researches which did not professedly deal with it. There is not one, moreover, of our great Physiologists and Chemists who has not long meditated on this problem, and largely contributed to its solution, but their replies in the majority of cases, have been indirect and implicit; sometimes indeed instinctive rather than intentional; and those whom they have addressed have often failed to perceive that a question had been proposed, and an answer to it given. A very few have distinctly considered the problem, among whom a foremost place must be assigned to the learned Lehmann[1] in whose writings such phrases as "the physiological value" of an element continually occur, and who is induced only by a sense of the complexity of the

[1] Physiological Chemistry by Prof. G. C. Lehmann, vol. i. Translated for the Cavendish Society by Prof. G. E. Day, St. Andrews. *Methodological Introduction*, pp. 10, 25.

inquiry, and the hopelessness in the present state of our knowledge of disposing of its difficulties, to adjourn its discussion for a season.[1] As for the great majority, again, of educated, intelligent, medical men and others conversant with Chemistry and Physiology, if such queries are addressed to them as, "Why do our skeletons consist of bone, rather than of wood, or flint, or marble? Why are our teeth composed of ivory rather than of steel? Why is our blood charged with iron, rather than with gold?" they are simply startled and make no reply. And truly no reply but a most imperfect one, is or ever will be possible; nor is it otherwise than with the utmost diffidence, that I attempt to suggest why only certain of the elements occur in living organisms. The question however is certainly one worth attempting to answer, because its consideration cannot but lead us to ennobling meditations of God, one of whose glories it is "to conceal a thing;" whilst to the extent that we can answer it we shall enlarge the domain alike of the Science of Biology and of the Art of Medicine. For no one will doubt that Science would gain by the disposal of the problem before us; and it is scarcely less evident that if we knew one reason, still more each of the reasons, why even one element, not to say all the organismal elements are present in our bodies, we should be better able by the amount of that knowledge to preserve health and to cure disease.

The problem thus awaiting a fruitful solution is as follows. Our globe, including the atmosphere, and the ocean with its tributary waters, consists in very unequal proportion of some sixty substances, which according to our present knowledge are simple or elementary. Of these sixty chemical elements, less than a third are found distributed throughout the entire Vegetable and Animal Kingdoms. Of this fractional third, one half occur only in small quantity, so that the *greater* part of the bulk and weight of plants and animals is made up of one fifth or one sixth of the whole elements; and the *greatest* part consists of but three, Carbon, Hydrogen, and Oxygen. This will appear from the accompanying table, in which the chemical elements occurring in

[1] Op. Cit. pp. 440, 443.

plants and animals are distinguished from those known to be absent from their tissues, or not yet recognised as present. The ever-present elements of Plants and Animals, I have distinguished as *Organismal* rather than as *Organic;* because on the one hand, the whole of the elements found in living structures, are also found in Inorganic masses; and on the other hand, many organic substances (according to the Chemist's definition of such), as Kakodyle, Stibio-methyle, and Zinc-ethyle, contain respectively Arsenic, Antimony, and Zinc, which are not normal constituents of plants or animals, and unless in the smallest quantities are deadly to all of them.

Organismal Elements.	Non-Organismal Elements.
Non-Metals.	
1. Oxygen.	1. Selenium?
2. Hydrogen.	2. Boron?
3. Nitrogen.	
4. Carbon.	
5. Sulphur.	
6. Phosphorus.	
7. Silicon.	
8. Chlorine.	
9. Bromine.	
10. Iodine.	
11. Fluorine.	
Metals.	
12. Potassium.	3. Aluminium.
13. Sodium.	4. Antimony.
14. Calcium.	5. Arsenic?
15. Magnesium.	6. Barium.
16. Iron.	7. Bismuth.
17. Manganese.	8. Cadmium.
	9. Cerium.
	10. Chromium.
	11. Cobalt.
	12. Copper?
	13. Didymium.
	14. Erbium.
	15. Gold.
	16. Glucinum.

Organismal Elements.	Non-Organismal Elements.
	Metals—continued.
	18. Iridium.
	19. Lanthanium.
	20. Lead ?
	21. Lithium.
	22. Molybdenum.
	23. Mercury.
	24. Nickel.
	25. Niobium.
	26. Osmium.
	27. Palladium.
	28. Pelopium.
	29. Platinum.
	30. Rhodium.
	31. Ruthenium.
	32. Silver.
	33. Strontium.
	34. Tantalum.
	35. Tellurium.
	36. Terbium.
	37. Thorium.
	38. Tin.
	39. Titanium.
	40. Tungsten.
	41. Uranium.
	42. Vanadium.
	43. Yttrium.
	44. Zinc.
	45. Zirconium.

The elements marked with a (?) are those which have either been occasionally detected in plants and animals, or which there are reasons for thinking would be found if sought for. Claims were at one time largely set up for arsenic, and lead, as present in all animals in small quantities, but those claims are now generally disallowed. A similar claim, but on better grounds, has been urged in behalf of copper, which is sometimes present in the human body, and is apparently never absent from some of the *Mollusca*, *Cephalopoda*, *Ascidiæ*, and *Crustacea*.[1]

[1] See in reference to the three metals in question, Lehmann's Phys. Chem. vol. i. pp. 449, 450.

Of the two missing non-metallic elements, Selenium, the analogue of sulphur, may be found accompanying the latter in the sulphur-compounds of the animal organism; and Boron, the salts of whose oxy-acids resemble those of carbon and silicon, may be associated with the alkaline carbonates and phosphates. Neither of these elements has as yet been sought for.

It may seem at first sight, questioning the sufficiency of the Chemist's "victorious analysis" to detect every ingredient of a complex whole, to hint that he may have missed certain organismal elements because he did not seek for them; seeing that he professes his ability to resolve an unknown composite substance into each of its ingredients, however numerous they may be, provided only they are all among the recognised sixty (or more) elements. But in reality, the Physiological Chemist has never done more than say, "*this* is present," and has always left a margin for those possible elements which had not been objects of search with him. No deliberate, exhaustive inquiry into all the elements of any plant or animal has ever been instituted, and till it shall be, a query may be put in every list of organismal elements over against all the so-called chemical simple substances; although it is manifest that, in the case of the human organism, we know all the elements which are present in *large* quantity in it. At the same time, when we find an organic compound so easily detected as sugar, overlooked, till very recently, in the secretions of the liver; and so familiar a substance as ammonia, after being positively pronounced, by the most skilful and impartial Chemists, to be totally absent from the blood, demonstrated, to the satisfaction of the most competent judges, to be one of its never failing and most important constituents, we must avoid dogmatising on what substances may yet prove to be essential ingredients, even of those organisms which have for the longest time been objects of study. And as quantity is no measure of value in the case of an organismal element, we must apply a similar rule to the rarest simple substances. More than five years of research have enabled me to demonstrate the universal distribution of Fluorine throughout the mineral, vegetable, and animal kingdoms, and especially its occurrence in the higher organisms;

and at length, my results have received confirmation by M. Nicklès,[1] who is about to lay his observations before the French Academy.

It thus appears, that, as regards the *kind* or *quality*, of their component matter, living organisms, so far as we know them, consist chiefly of non-metallic matter; eleven out of the thirteen non-metals (including hydrogen) being found in them, whilst only six of the solidifiable metals have as yet been recognised among their components. If, however, Hydrogen is a metal, as there are so many reasons for believing it to be, and if Silicon is a metal, and as such better named Silicium, then the list of non-metallic bodies will be diminished by two, but they will still exceed the metals in number by three.[2]

So far again as *quantity* of component ingredient is concerned, the bulk and weight of all living Organisms are most largely made up of non-metallic matter; charcoal and oxygen specially preponderating.

In relation, thus, both to quality and quantity of constituent elements, Plants and Animals are mainly aggregations of Non-Metals: but this forms no point of distinction between them and a multitude, perhaps the majority, of minerals;[3] nor does it warrant any conclusion as to the metals which do occur in Organisms, being less important than their non-metallic elements.

[1] My papers on Fluorine are contained in the Transactions of the Royal Society of Edinburgh for April 6, 1846, and April 19, 1852, and in the Proceedings of the same Society for November 1846; likewise in the Reports of the British Association for 1846 and 1850, and in the Transactions of the Botanical Society of Edinburgh for 1852. I give these references in detail, because M. Nicklès is apparently unacquainted with any of my researches, and has deposited with the French Academy, a preliminary Note on "The Presence of Fluorine in the Blood," which, ten years after I had announced the fact, he claims as a discovery which he has just made in November last. (*Journal de Pharmacie pour Décembre* 1856. Présence du fluor dans le sang par M. J. Nicklès. *Communiqué à l'Académie des Sciences, dans la séance du* 3 *November* 1856.)

[2] The recent interesting discovery by Wöhler and Deville, that Boron is crystallisable like Carbon in its diamond-modification, and does not put on crystalline metallic characters, lessens the probability of Silicon proving to be a metal.

[3] Certainly the majority, if Silicon, which next to Oxygen is the prevailing element in Minerals, is not metallic.

Living Organisms then are not chance-medleys of elements of different kinds; nor do they consist of equal quantities of all the elements; nor do they contain in greatest quantity the elements which contribute most largely to the weight of the Globe.

It is true that as all plants consist chiefly of Charcoal and Water, the amount of Vegetable Matter on the Globe could not be large, if Carbon, Hydrogen, and Oxygen, were not abundant; and as the great majority of animals have much lime in their skeletons, their number could not be great, if lime were a scarce substance. But it certainly is not merely because charcoal, water, and lime are plentiful that they occur in living Organisms. On the other hand both plants and animals are found to reject substances which are in abundance about them, and to appropriate others which are scantily provided by nature, and can only be very slowly accumulated even in favourable circumstances. A Land plant, for example, finds in the soil which supports it much of the earth or oxide *Alumina*, and very little of the Alkalies potash and soda; yet it totally refuses to take any of the alumina, whilst it untiringly searches for and absorbs the alkalies; or dies if it cannot find them. A graminivorous animal finds in its food much Silica, yet with the exception of a very little in the hair, and mere traces elsewhere, silica is absent from all its structures. On the other hand it finds in its food very little phosphate of lime but it appropriates the whole of it, expending it on the nutrition of every tissue, but especially in constructing its bones.

If we had the means of comparing the weight of an elephant's tusk, say of 150 lbs., with the tons of vegetable matter which the animal had to devour, and the hundredweights of Silica which it had to reject, before it obtained a sufficient amount of phosphate of Lime to form the ivory of a single tooth, we should have a startling proof that there is no necessary connection between the quantity of raw material offered to an Organism, and the quantity of that material appropriated by it.

The illustration of this truth afforded by the rejection of Alumina by plants, and of Silica by animals, is the more significant that it is strikingly at variance with common

belief. Silica and Alumina together, constitute clay, and although this occurs in no plant or animal of any kind, all plants and animals, and especially Man are held to have been created from it, and to revert to it after death. Not merely the vulgar but also the intelligent have agreed in interpreting the Sacred declaration that "the Lord God formed man of the dust of the ground," as signifying that man was made from clay. Theologians have often undesignedly contributed to the opinion, by mixing up with this simple declaration of a physical truth the purely metaphorical references of Scripture to "the earthly house of this tabernacle" and to mankind under God's sovereignty as resembling "Clay in the hands of the potter." The doctrine, however, does not belong only to Christendom. In many regions of the East, Adam is held to have been a Red Man and made of red clay; nay, a specimen of such loam, brought from a traditional site of the Garden of Eden near the Euphrates, was recently offered in Edinburgh for chemical analysis, to see if it could be identified as Adamic dust! Shakespeare long ago counted upon a universal response when he made Hamlet too curiously consider, how

> Imperious Cæsar dead, and turned to clay,
> Might stop a hole to keep the wind away;

and our latest and greatest poetess, in her Aurora Leigh, makes her hero Romney exclaim,

> "Dear Marian, of one clay God made us all,
> And though men push and poke and paddle in't,
> (As children play at fashioning dirt-pies),
> And call their fancies by the name of facts,
> Assuming difference, lordship, privilege,
> When all's plain dirt,—they come back to it at last;
> The first grave-digger proves it with a spade,
> And pats all even."[1]

The belief is a very natural one, for no dust is more abundant than clay-dust; and plants live with their roots buried in clay, and on plants all Animals, including Man,

[1] 1st Edn. p. 139.

feed directly or indirectly; yet the belief is without any foundation. Dust we are, and unto dust we shall return, but not into clay.

The selecting power which thus characterises the vegetable and animal worlds each as a whole, is not less strikingly shown when we compare genera with genera, or species with species, as to their component ingredients. In every botanic garden one may see plants requiring very different kinds of food growing side by side, and living on the same soil. Botanic gardens would be impossible but for this. If we had not only to bring the palm from South America, and the camellia from China, but also to import the very earth in which they grew, our richest gardens would exhibit a very meagre show. We stole the secret of porcelain-making from the Chinese, but it did us no good, till in a few widely-separated places in Europe we discovered porcelain-clay. But the camellias, the azaleas, and tea-plants of China take as kindly to British earth as if they had never known any other; and the palms, if they sigh for brighter skies, and for breezes with warmer breaths, make no complaint against the soil or water of England. Botanic gardens are possible, because, provided their soils contain all the ingredients of plants, each will select for itself exactly what it requires.

Zoological gardens are possible for a similar reason, and illustrate the same truth. The naturally carnivorous cat may be accustomed to a vegetable diet, and the naturally graminivorous horse or ox to an animal diet, provided in both cases no ingredient essential to life is wanting, for the selecting power resident in each organism will prevent it from injuriously losing or gaining by the change.

A still more striking example of selective action is afforded by the plants and animals which simultaneously develop themselves from the same medium, such as the sea. In any rocky pool, when the tide is out, and in every thriving drawing-room aquarium, one may find the graceful plants which we call sea-weeds sipping from the mingled waters their daily fractional dose of iodine; housed sea-snails sucking from it carbonate of lime for their shells; restless fishes extracting from it phosphate of lime to strengthen their bones; and

lazy-like sponges dipping successfully into it for silica to distend the mouths of their filters.

Thus, no creature is a fortuitous concourse of atoms. Each is as definite and constant in its chemical composition as it is in its mechanical structure, or its external form. A bird does not more certainly in successive generations instinctively build its nest in the same way, than from the first moment of its embryonic life it unconsciously builds its own body out of the same materials, gathering lime to its bones, iron to its blood, and silica to its feathers.

In this way, through unnumbered centuries, each tribe of organisms has from the period of its creation followed in its structural development, a chemical formula of composition, which in the same species is constant, within narrow limits, for every one of its members, so that each plant and animal has a chemical as well as an anatomical individuality. On analysing an organism, we find certain substances, and only these, present; and we have made some progress, though as yet it is but small, in establishing the quantities in which those chemical constants occur in different species. I have called them "constants" because the first, and, perhaps, the fullest proof that a chemical element is essential to an organism, is its invariable presence in it. A criterion like that by which *Vincentius Lirinensis* proposed to test Catholic religious doctrine is applicable here. *Quod semper, quod ubique, quod ab omnibus.* Whatever chemical element is found in all the individuals of a species, at all times, and in all places, is essential to each individual. This criterion requires only the qualification that neither plant nor animal can prevent non-essential substances from entering its body along with its food, and in the air and water on which it so largely lives; so that if we analyse it whilst it is thus traversed by a non-essential element, we may mistake that for an essential ingredient. But if this unwelcome visitant be not so poisonous as to kill the subject of its intrusion, in which case analysis would be out of the question, it will soon be dismissed, for every organism has as positive a power of refusing as of choosing, and its house is its castle. It would be foolish, accordingly, to act like the census-collectors who count

every one a member of the family, whom they find within its house at the moment of knocking at the door. We must, as when analysing inorganic individuals such as crystallised minerals, select various examples from different localities, and analyse each. The essential ingredients may then be readily distinguished from the incidental, as well as the extent to which one element is replaceable by another without departure from the specific chemical type. A chemical formula thus reached, will one day characterise organic species, as it now does inorganic ones.

Within the limits of variation which such analysis will show, every element discovered in a plant or animal must be regarded as essential to it. The endeavour of some to rank the ingredients found in an organism as important in proportion as they are present in large or small quantity, is plainly fallacious. Assuredly no substances are more important to all classes of organisms than hydrogen and oxygen, which during life predominate in them; but we are not entitled to affirm that the water of which the blood chiefly consists is a more important vital constituent, than the common salt and the iron which are found in it. Blood is as invariably saline and ferruginous as it is aqueous; and it would be as unwise to disregard the iron because its amount is small, as it would be to hold the mortar in a building useless, because its weight is insignificant compared with that of the stones which it binds together; or to disregard the nails, because they are few, which unite the planks of a vessel; or the threads, because they are scanty, which convert a dozen furs into a single garment.

On the other hand, seeing that the more powerful any agent is, the less of it is needed to produce a given effect very potent chemical elements cannot be expected to occur in large quantities, and hence some have proposed to consider the least abundant ingredients of an organism as those most valuable to it; so that fluorine and silicon would occupy the highest place among the elementary constituents of the animal frame. It is needless to enter into an elaborate refutation of this view. We know that 1 unit by weight of hydrogen is equal in *chemical* power to 200 such units of a closely analogous body quicksilver. There is no prepon-

derance of such power on the part of either, but only perfect equality, so that we speak of one and two hundred as the chemical *equivalents* of these bodies. Quicksilver may represent an abundant organismal element, when contrasted by equivalent with hydrogen, held to represent a scanty one, but neither chemically excels the other in such proportions; to compare the chemical powers of equal weights, is to transgress the first law of quantitative chemistry. We must in the meanwhile be content to ascertain in what proportions the elements of organisms occur in them, with no prejudice in favour of scanty or abundant occurrence as a measure of importance.

Seeing, then, that every plant and animal is an edifice like the temple of the Hebrews, built of stones squared and fashioned for their respective places before they were put together, we cannot forbear the question why were certain building materials chosen rather than others? This choice can have been made, no matter how brought about, only because of a peculiar fitness which they possessed beyond those equally accessible, to which they were preferred. Let us try the point in a case or two, and in the following way, limiting ourselves to the human organism.

Suppose an intelligent person, quite ignorant of both chemistry and physiology, to be taught as much of the latter science as can be learned without an acquaintance with the former, and then to have shown him the properties of all the chemical elements and their chief compounds, after which he is requested to state which of those elements is most likely to occur in the human frame.

Avoiding all minute details in reference to structural peculiarities, and not even appealing to the microscope; (for it would be premature in the present state of our knowledge to attempt to explain the chemical changes which attend the development and metamorphosis of cells;) the physiologist is content to teach his pupil the great general laws which regulate the changes of the human organism during life; such for example as the following.

The living body of man unites in itself the contrasted and apparently incompatible qualities, of great stability and great mobility. It is so stable that it can last for threescore years and ten; for a hundred or more; maintaining its

sharply defined individuality all the time. It is so mobile that it does not consist of entirely the same particles during any two successive moments. The dead matter of the outer world, it is ever changing into its own living substance, and its living substance it is ever changing into dead matter which, as alien to itself it returns to the outer world. Like the heavenly bodies, it undergoes a series of secular variations, which carry it with continually altering conditions through the several phases of embryonic, infant, adolescent, adult and senile life. Like certain of the heavenly bodies, also, it describes a diurnal revolution, knowing the alternations of sleep and waking, hunger and satiety, activity and rest. The reproduction of its kind involves a peculiar series of very complex changes especially in the maternal organism. Mechanical injuries disabling or destroying organs and tissues require the manifestation of corresponding reparative processes. Disease, equally defacing and destructive, demands a countervailing *vis medicatrix* to neutralise its violence; or rather, disease is a battle between the organismal elements which are quick at finding a *casus belli* and are very rarely at perfect peace with each other. Everlasting change and yet fixity. Unceasing struggle and yet no schism. Civil war and yet no anarchy. These unlike conditions are realised and harmonised, every moment, in our fearfully and wonderfully made bodies.

If we reduce those apparent incompatibles to their simplest expression, we shall perhaps find it in this. Physically, the human organism is an aggregation of solids and liquids which are continually changing into each other; the solid melting into the liquid, the liquid congealing into the solid; whilst both stand so related to the air which is the breath of life, that they are continually vaporising into gases, and gases are continually liquefying and solidifying into them. When Hamlet exclaimed,

> "O! that this too, too solid flesh would melt,
> Thaw, and resolve itself into a dew,"

he was preferring a request which was granted before it was preferred, and which is every moment receiving fulfilment in each of us. Blood is liquefied muscle, sinew, nerve, brain, and bone. Bone, brain, nerve, sinew, and muscle are solidified blood;

and at every moment flesh is becoming blood, and blood flesh. The current in our veins is at once a River of the Water of Life, feeding and sustaining all that grows along its shores, and a River of the Water of Lethe quenching in oblivion everything that it touches. Like the Nile or the other great rivers of the world, it is at the same time wearing down hills, and building up continents; but with this difference, that whereas the Nile is only destructive among the mountains of Abyssinia, and only constructive in the plains of Egypt, the blood at every point in its course is simultaneously adding and abstracting. Those wondrous crimson barks or blood-cells which navigate the arteries are keen traders, and follow the rule of the African rivers, where sales are effected only by barter; but they add to this rule, one peculiar to themselves, which neither civilized nor savage man cares to follow, namely, that they give away new goods in exchange for old. Here the traffickers on the Red River deposit fresh brain-particles, to replace those which the immaterial spirit has sacrificed to the expression of its thoughts; for Jeremy Taylor taught a great physical truth when he declared long ago, that "whilst we think a thought we die." The eloquent preacher saw death near us at every moment, and nearer at each than at the moment before; but death is *in* us at every moment, and it is not merely *whilst*, but *because* we think a thought we die. Alas! that we cannot be content with such innocent self-slaughter, which the river of life in our veins forgives into resurrection in every case, as fast as it ripples along. It cannot help us, if we overthink ourselves and die before our time, but during life its mariners deal in all vital wares. As fast as the blacksmith wastes his muscles by each blow, they barter against the spent cordage of his arm, new flesh-particles to make it strong as before: they restore to its integrity the exhausted auditory nerve of the musician, give the painter a new retina, and the singer a new tongue. Wherever, in a word, the million lamps of life, which keep up its flame at every point of the body, have burned to the socket, they are replaced by freshly trimmed ones; nor is it here as with the barter of Aladdin's Lamp. The New lamp is in this case the magic one; the Genie has departed from the Old.

Chemically, again, the human organism is the continual subject of swift changes of its composition in opposite directions. One half of the blood, which is in the arteries, is always in one chemical condition; the other half which is in the veins, is in another condition: and the whole blood is at all times rapidly transferred through these alternations. The arterial blood is charged with oxygen; the venous with carbonic acid. These gases are partly the causes, partly the effects, partly the indices of chemical differences between the two bloods, which affect probably more or less all their respective ingredients. At one half revolution of the circulation, they are changed in one way at the capillaries of the lungs, whilst oxygen is absorbed: at the other half revolution they are changed in another way at the capillaries of the system, whilst oxygen is lost and carbonic acid takes its place.

There is thus continual addition of matter to the body, and continual withdrawal of matter from it; but apart from this, and within the ring-fence of its own organism, a process of combustion, and one the very reverse, are going on together. Our bodies are at all times like the fire which was shown to the hero of the Pilgrim's Progress in Interpreter's House, which had water poured on it, on one side of the wall against which it blazed, and oil on the other. Here one tissue is burning like fuel, and there another is becoming the depository of combustible matter. We have, as it were, millions of microscopic wind-furnaces, converting into carbonic acid, water-vapour, and other products of combustion, all the combustible elements of the body; and millions of blast-furnaces reducing the starch and sugar of the food, and the sulphates and phosphates of the body, into inflammable oils and other fuels, which are finally transferred to the wind-furnaces and burned there. Burning, and what we must call in contradistinction, *unburning*, thus proceed together; the flame of life, like a blow-pipe flame, exhibiting an oxidising, and a reducing action, at points not far distant from each other.

There are thus as concerns the organism, continual addition and continual abstraction; continual physical alternation of liquefaction and solidification; continual chemical alternation of combustion and reduction. The blood-vessels are at once

the water-pipes of the city of Mansoul, bringing fresh springs into it, and the drain-tunnels carrying all that is waste and useless away. The heart is the one true conjuror's bottle, pouring forth, aye and at the same time, liquids the most unlike to satisfy thirsts as strange; saliva to wet the lips, tears to relieve the eye, milk to swell the mother's breast, and oil to make supple the wrestler's limbs. The whole organism is, as the older writers loved to call it, a *Microcosm* or world in little, where in one land they are rejoicing, and in another weeping; where on this shore they are singing Te Deum, and on that shore Miserere; where at the same moment it is "a time to love, and a time to hate, a time of war, and a time of peace."

Such is the human body, ever changing, ever abiding. A temple, always complete, and yet always under repair. A mansion, which quite contents its possessor, and yet has its plan and its materials altered each moment. A machine which never stops working, and yet is taken to pieces in the one twinkling of an eye, and put together in the other. A cloth of gold, to which the needle is ever adding on one side of a line, and from which the scissors are ever cutting away on the other. Yes! Life like Penelope of old is ever weaving and unweaving the same web, whilst her grim suitors Disease and Death watch for her halting; only for her there is no Ulysses who one day will in triumph return.

If the imperfect description which has been given of the human organism is in any respect faithful, it is manifest that the chemical elements which enter into its composition must exhibit the contrasted stability and mobility which so strikingly characterise itself. Suppose, then, our physiologist's pupil, guided by this rule, to study the chemist's elementary bodies, with a view to discover which of them are most suited for the living frame. Is it likely that among the sixty he would select only seventeen? that he would select the actual seventeen which are found? that he would even prefer non-metallic to metallic matter? or assign any place to abundant constituents, such as the metal of lime, or to never-failing unabundant ones, such as fluorine? He would probably select air and water, but beyond these I feel quite unable to surmise how far his Frankenstein would agree in composition with

the Homo Sapiens of Linnæus. At all events, the chances are very great that he would pass over entirely that remarkable group of elements, in which two of the most characteristic ingredients of all animal organisms are included. This group contains four bodies, Phosphorus, Arsenic, Antimony, Nitrogen, with an outlying fifth one, Bismuth, which I do not at present consider; and, in the whole category of elements, no four at first sight seem more unfitted for organismal constituents than they. Phosphorus has been known for two centuries as a dangerous combustible, and most deadly poison, which the recent sad, and often fatal experience of the lucifer-match makers has shown to possess a peculiar antipathy to the bones, for when it can reach them, as it can those of the jaws, it rots them away. On the poisonous properties of arsenic it is quite needless to dwell. Antimony, or Anti-Monk, betrays by its name a deadliness to man, akin to that of its name-sister, Monkshood, a still more potent killer; and for both, all men are monks. Nitrogen, on the other hand, has seemingly no properties at all; a light, thin, tasteless, insipid, insoluble, incombustible gas, to appearance good for nothing, and as such fitly symbolised in chemical tables by the letter N. Two Murderers, a dangerous Mediciner, and an Incapable, are surely not the parties to whom any one would propose to entrust our lives? Yet the fiery phosphorus and the negative nitrogen, are the two elements which, by their greater abundance in animals, and the part which they play there, most strikingly distinguish animals from plants; and they are specially important in relation to the human organism. When, moreover, we study those two elements more particularly, they singularly change characters; Phosphorus, on a closer acquaintance, proving to be a very healthful and friendly occupant of the body, Nitrogen prone to conceal under its look of helpless indifference the most energetic powers of making and marring, so that when occasion calls, it proves better at killing and slaying than any one of its more demonstrative brethren.

Into a more detailed consideration of these elements I will now enter, in the hope of showing, that though we might, not have anticipated their presence in our bodies, we can point out many reasons why they actually are there. First

of phosphorus. Its importance to the human organism is shown, 1st, by its invariable presence in it; 2d, by the abundance of its presence; 3d, by the universality of its presence; 4th, by the diversified manifestations of its presence; 5th, by the active part which it takes in the most energetic vital processes, such as absorption, secretion, nutrition, reproduction, sensation, emotion, and all the other forms of nervous or cerebral action; 6th, by the invariable loss of health which attends its withdrawal from the body; 7th, by its efficacy as a restorative. A substance which is alike present in the hardest bone and the most pulpy nerve, which occurs in one form or rather series of forms in the blood, in another series in the flesh-juices, in a third in the milk, in a fourth in the brain, and probably in other modifications elsewhere in the organism, and which is associated with all its critical changes, must be pre-eminently serviceable to the body.

Phosphorus occurs in all organisms chiefly as phosphoric acid, in union with water, with mineral and organic bases, with fatty bodies, and in other forms of organic combination as yet little understood. The following exposition of the properties of the element and its chief organismal compounds may illustrate why it is so serviceable to the body.

I. Phosphorus is remarkable for the Protean shapes which it can assume. Some elementary bodies, such as gold, are familiar to us in one form, and that so beautiful that we are not curious to inquire whether the metal can assume other and less noble shapes. In truth we have but recently fully realised that a multitude of the chemical elements can masquerade in disguises, through which we with difficulty realise their individuality. Among those masqueraders a first place must be given to the element under notice.

Since about 1660 we have been familiar with phosphorus as a soft semi-transparent nearly colourless wax-like substance, possessed of a glassy structure, exhaling in the air an odour of garlic, shining even at the freezing point of water, melting a hundred degrees below the boiling point (111°5 F.) of that liquid, bursting into flame in the air at a temperature a little higher, and yielding a thick white smoke condensing into a snow of phosphoric acid. This form of the element we have learned to distinguish as vitreous phosphorus. It is

so inflammable, that it can be preserved with safety only under water, and there is scarcely a chemist who has not been in some degree a martyr to its flames. It is so poisonous that not a year passes without some poor child falling a victim to the minute portion which it thoughtlessly eats from a lucifer-match, and without some uncautioned lucifer-match maker suffering the prolonged tortures of slow poisoning, which its daily administration in infinitesimal doses infallibly occasions. It reacts so powerfully upon the air in which it is permitted to fume, that it changes its oxygen into the energetic, oxidising, deodorising and bleaching agent which is known as ozone. In a word, it exhibits in an intense degree an affinity, or tendency to combine, alike with metals and non-metals, and strikingly alters each by its union with it.

In so far, then, as mobility, or susceptibility of various change is concerned, no one will question the fitness of phosphorus to become an organismal element. But till recently we had not discovered that it can change this mobile, restless, agonistic condition, for one of passive indifference and great stability.

Recent researches have shown that vitreous phosphorus is susceptible of no fewer than five modifications.

1st, It may be altered from the glassy to the crystalline condition.

2d, By exposure under water to air and light, it becomes a *white*, opaque, sparingly fusible body.

3d, By fusion and sudden cooling at a comparatively low temperature, it becomes *black* and opaque.

4th, By elevation to near its boiling point, and sudden cooling, it becomes viscid like sulphur in the same circumstances, and retains for a considerable period a consistence like that of caoutchouc.

5th, By exposure to the rays of the sun in a vacuum, or in a gas free from oxygen, or in water free from air, and excluded from air, it changes into an amorphous *red* solid.

Thus we know phosphorus as

1. A symmetrical crystal.
2. A true vitreous body, or glass.
3. A soft elastic substance like caoutchouc.
4. A white amorphous solid.

5. A black amorphous solid.
6. A red amorphous solid.[1]

The crystalline phosphorus and the vitreous closely correspond in chemical characters, and we know little of the elastic, the white and the black varieties; but the possibility of producing them illustrates how susceptible phosphorus is of many modifications, and in the red amorphous modification we have an indifferent form of the element, so unlike that in which we are accustomed to see phosphorus, that though it has been in the chemist's hands for more than a century, he has only very recently recognised that it is phosphorus.

It is now, however, manufactured on the large scale,[2] so that its properties may be stated and illustrated in full. It is neither crystalline nor glassy, but amorphous, and heavier than the familiar forms of phosphorus. It does not shine at the heat of freezing water, nor melt even at that of boiling water. It exhales at ordinary temperatures no vapour and no odour, nor does it become oxidised in the air, or change it into ozone. It is not poisonous even when directly administered in doses a hundred times greater than those which are fatal with vitreous phosphorus, and it may be handled with impunity. Towards other elements it shows in general a singular indifference, nor is it till we raise it to the temperature of 500° F., some 470° above the heat necessary to make vitreous phosphorus begin to burn, that it starts into activity, bursting into flame, and yielding phosphoric acid. It appears to owe its peculiarities to the presence in it of much latent heat, so that it differs from vitreous phosphorus, as steam does from water, and water from ice, for it is most easily produced by long maintenance of the common phosphorus at a temperature below

[1] See Gmelin's Handbook of Chemistry, Cavendish Soc. Trans., article *Phosphorus*. Prof. W. A. Miller's Chemistry, vol. ii. p. 593. Graham's Chemistry, vol. i. p. 431.

[2] Messrs. Albright, near Birmingham, have for the last five or six years prepared red phosphorus according to Schrötter's process, which they have patented. I am indebted to these gentlemen for the opportunity of examining large specimens of this important substance, which promises, by its comparative harmlessness, to render the manufacture, use, and carriage of lucifer matches much less dangerous than they are at present.

490°, and when heated above this point it suddenly bursts into vapour, changing with evolution of heat into the familiar modification of the element. But it can be produced by a brief exposure of the vitreous phosphorus to light, in a vacuum or non-oxygenous atmosphere, and when common phosphorus is kindled in air, it always changes in part into the red amorphous modification, which remains when the non-amorphous portion has burned away; and some interesting researches of Professor Brodie appear to prove that the change may attend the combination of phosphorus with other bodies.

Here then is an element which can imperceptibly and quickly pass from a condition of great chemical activity to one of great chemical inertness. I suggest this susceptibility of change as one reason why phosphorus is a predominant organismal element. Without insisting on its sixfold mutability, let its twofold mobility, of which we are quite certain, be kept in view. Phosphorus, in virtue of this, may follow the blood in its changes, may oxidise in the one great set of capillaries, and be indifferent to oxygen in the other; may occur in the brain in the vitreous form, changing as quickly as the intellect or imagination demands, and literally flaming, that thoughts may breathe and words may burn; and may be present in the bones in its amorphous form, content, like an impassive caryatid, to sustain upon its unwearied shoulders the mere dead weight of stones of flesh. And what is said here of the brain, as contrasted with the bones, will apply with equal or similar force to many other organs of the body. All throughout the living system we may believe that phosphorus is found, at the centres of vital action in the active condition, and at its outlying points in the passive condition. In the one case, it is like the soldier with his loaded musket pressed to his shoulder, and his finger on the trigger, almost anticipating the command to fire; in the other, it is like the same soldier with his unloaded weapon at his side, standing at ease.

Phosphorus will react also on other bodies, according to its own condition; and as it appears that vitreous phosphorus not only oxidises with great rapidity when it encounters air, but at the same time changes that air in part into ozone, *i.e.*, greatly exalts its oxidising power, it will be seen that

the quick oxidation of phosphorus within the organism may often imply the simultaneous quick oxidation (through the ozone it generates) of all the surrounding oxidable substances.

It is premature to speculate on such matters, but it is desirable to notice emphatically, that physiology has not yet recognised the importance of that susceptibility of molecular change which chemists specify by the name of "Allotropy." It increases alike the difficulties and the resources of biology. Hitherto, we have begun with each element as if it had one narrowly-defined set of sensible characters, which we have briefly enumerated; and thereafter we have proceeded to consider its chemical compounds, with the exposition of which our zoo-chemical demonstrations have commenced. But now it appears that what we regarded as the basement floor, level with the ground, was at least one story above it, and when we dig away the sand, we find vault covering vault, and know not as yet how many stories lie below. Among organismal elements, not only phosphorus, but oxygen, carbon, sulphur, and chlorine are known to admit of molecular modifications. The tendency, indeed, of discovery is to show that every chemical element is in this predicament, for every day adds to the number of allotropic substances. Moreover, we can confidently affirm, that when they enter into combination, the compounds which they form often reflect the image of the modification which characterised the element at the moment of its combination, and that we may have oxides, for example, of the same composition (so far, at least, as ponderable constituents are concerned), yet very different in property.

As pre-eminent among the possessors of this variability, phosphorus is more suitable than any element we yet know, to minister to the unchanging change of the living body.

It is not, however, as elemental phosphorus, intricately combined with organised molecules in ways which the chemist cannot interpret in his study or imitate in his laboratory, that this organismal constant chiefly occurs. As already stated, it is present in living bodies chiefly as its highest oxide, phosphoric acid.

When a bone is burned to whiteness in the open air, it yields a crumbling chalk-like solid, significantly called bone-

earth, of which the larger part is lime, whilst the remainder is in great part phosphoric acid. This acid can be separated from the bone-earth, by pouring oil of vitriol upon it, and its properties as the dominant acid of all the higher sentient organisms, are now to be considered.

Phosphoric acid has all the properties of the most powerful acids. It dissolves in water. It is intensely sour. It reddens all acidifiable vegetable blues. It perfectly saturates powerful bases. In these respects it agrees with sulphuric, nitric, hydrochloric, and acetic acids. But from all other acids possessing such properties, it differs in several singular ways, and these differences point to the cause of its organismal pre-eminence.

The first remarkable difference is its freedom from corrosiveness. The acids named above, even when considerably diluted with water, rapidly disintegrate organic bodies, and in their strongest aqueous dilutions, act like hot irons on the skin. A drop of oil of vitriol, or of the strongest aqua fortis, burns the flesh like a live coal, and unless mingled with much water, excites painful and dangerous inflammation of the tissues. But the phosphoric acid extracted from bones, even when combined with a chemical minimum of water, and concentrated into a crystallisable hydrate, may be spread for a considerable time over the thinnest skin of the living body without burning, paining, or inflaming it. It is thus of all the strong acids we know, the only one which can be set free, and that in a concentrated form, within living organisms, without causing their destruction. In this peculiarity I find one cause of its universal presence in the body; for whatever services an acid can render to an active organism phosphoric acid can render to the full without harming it.[1]

A second peculiarity of phosphoric acid is, that unlike the majority of equally strong acids, it does not coagulate albumen. And as this substance, familiar to all in white of egg, is largely present in the flesh, the natural juice of which

[1] It seems worth the consideration of surgeons, whether common phosphoric acid, in virtue of its unirritating action on living tissues, and its solvent action on phosphatic calculi, may not as a *litholytic* be brought in direct contact with vesical concretions of the non-acid class, and render in some cases operations unnecessary.

contains partially neutralised phosphoric acid;[1] and is also largely present in the brain and nerves, associated with a modification of the same acid known as oleo-phosphoric acid, we can affirm at least that the solitary potent inorganic acid compatible with the non-coagulation of albumen, is the only one found in a free (or at least partially free) state, in association with the liquid form of that important organismal constituent. These peculiarities, however, are as nothing compared with the third, which calls for special notice. The majority of acids which are soluble in water exhibit their characteristic properties most markedly when associated with the chemical minimum of water which can combine with them, and when more water is added, they show in a less degree, according to their dilution, such qualities as sourness, power to alter vegetable colours, and to saturate bases. There is thus but *one* sulphuric, or nitric acid. The less water united with either, the more powerful it is, and the greater the weight of base it can neutralise. In the language of quantitative chemistry, one equivalent (or chemical unit) of nitric acid can combine with one equivalent of a base, neither more nor less. This is the general rule. One unit by weight of an acid unites with one unit of base, and here the neutralising power of the former stops, so that as dilution by water implies the spreading of the efficacious unit over a wider area, a given weight of diluted acid must neutralise a smaller weight of an undiluted base than the same weight of stronger acid will neutralise. Hence, the less amount of water, the greater the acidity of the acid; and unit of acid to unit of water is the condition of greatest strength.

But to this widely applicable rule phosphoric acid forms a remarkable exception. It is most acid when united not with one, but with *three* units of water. In this condition it is extracted from bones, and found (at least after death), in the blood and flesh. One unit of the acid crystallises along with three units of water, and retains these in special combination to whatever extent it is diluted with more water. Its neutralising power, moreover, is correspondingly threefold, so that, for example, in the bones, one equivalent of it is combined with three equivalents of lime, whilst all the

[1] The tribasic, acid phosphate of potash ($2\,HO, KO + PO_5$.)

other bone-acids are united in single units, with a single unit of lime. An endless series of salts similar to bone-phosphate, but containing other bases than lime, are known to chemists, who distinguish them as a class, as the tribasic phosphates. The organismal importance, however, of this property of phosphoric acid will not appear till we look to a fourth peculiarity which it possesses.

Phosphoric acid has the singular power of dropping or casting off, as it were, one of the three units of water which it is able to retain, keeping only two, and refusing, even though dissolved in volumes of water, to take back the third. In this modification (which is known as pyro-phosphoric acid), it has not a threefold, but only a *twofold* power of neutralising bases, so that, for example, as it occurs in burnt bones, one equivalent is united with but two equivalents of magnesia, and an extensive series of corresponding salts is known, distinguished as the bibasic phosphates.

But further: pyro-phosphoric acid can part with one of the two units of water which it characteristically retains, as common phosphoric acid can part at once with two of its three characteristic units of water, both becoming, like the ordinary mineral acids, a compound of unit of acid to unit of water, with a onefold power of neutralising bases. This modification has been called meta-phosphoric acid. It also forms a large series of salts all containing one equivalent of acid to one equivalent of base, and distinguished as monobasic phosphates.

Meta-phosphoric acid, unlike the other hydrates of the acid, coagulates albumen. Dissolved in cold water, it slowly takes to itself two additional units of that body; and if boiled with the liquid, it takes them with great rapidity.

We have thus to begin with a snow-like soft solid, called anhydrous phosphoric acid, procured by burning dry phosphorus in equally dry air. When we dissolve it in water, it so unites with that liquid as to produce, according to circumstances, three acid solutions, as distinct from each other in all their properties as if they were composed of totally different ingredients. These three solutions, distinguished as common phosphoric, pyro-phosphoric, and meta-phosphoric acids (of which the first two are crystallisable as solids), are mutually

convertible by loss or gain of two units or chemical equivalents of water; the first named, which retains three such units, being the most stable, and the last, which retains but one aqueous unit, the least so.[1] The chief organismal acid is thus equal in powers to three ordinary acids, and strikingly exhibits the quality of mobility or variability, which has been shown to be so essential to the active components of living organisms. Yet triply potent as phosphoric acid is, it does not, in any of its modifications, exhibit corrosiveness or poisonousness. This has already been referred to as characterising the tribasic acid, but is still more remarkable as characterising the bibasic and monobasic acid, for the general rule is, that the less the amount of water in a hydrated acid, the more caustic, corrosive, and poisonous it is. But even anhydrous phosphoric acid half-deliquesced, may be kept in contact with the skin for an hour without injury, where the similar hydrate of sulphuric acid would in a few minutes reduce the tissue to charcoal.

The innocuousness, indeed, of the strongest phosphoric acid is, in many respects, as inexplicable as it is paradoxical. Chemists refer the caustic action of strong sulphuric, nitric, hydrochloric, and acetic acids, in great part, to their intense affinity for water, which they compel the organic bodies touched by them to give up, so that their chemical integrity is destroyed. But the water which these corrosive acids take

[1] The three hydrates of phosphoric acid, taken in the same order as in the text, are best distinguished as tribasic, bibasic, and monobasic phosphoric acid, according to the nomenclature of Thomas Graham, Esq., Master of the Mint, our greatest authority on the subject. On the binary theory of acids and salts, each of Mr. Graham's hydrates is represented as a peculiar hydracid:—

Thus, Tribasic Acid . . .	$PO_8 + H_3$
Bibasic Acid . . .	$PO_7 + H_2$
Monobasic Acid . .	$PO_6 + H$

It is quite immaterial to the argument pursued in the text, which of the rival theories of acids is adopted. On both views the same weight of the same three ingredients, phosphorus, oxygen, and hydrogen, is recognised as present: The only matter in dispute is, the mode in which the ingredients are arranged. Mr. Graham's view is preferred as the one more easily followed by those who have not made chemistry a special study.

from an organised structure, anhydrous phosphoric acid can take from them. The most caustic acids known to us are probably sulphuric and hydrofluoric acid, but the strong hydrates of both are rendered anhydrous by phosphoric acid, which nevertheless does not possess a trace of their causticity. It has latterly come into extensive and most important use among scientific chemists, as a means of dehydrating or rendering waterless other substances, so remarkably does it excel them in affinity for water, and yet the powers which they owe to such an affinity are not exhibited by it. It is thus a lord paramount among acids, compelling its barons to surrender to it the prey which they have taken from the innocents, but never found robbing the innocents itself.

There is much indeed, as yet unaccounted for, in the relation of phosphoric acid to water. One should expect such a substance to dissolve in this liquid with the greatest rapidity; yet the anhydrous acid, though it hisses like hot iron when it meets water, and shows by the heat which it evolves, an intense affinity for it, seems to retain that affinity only for a moment, and to have its thirst quenched by the first draught, or rather sip of liquid, for it dissolves slowly, like snow which has barely reached the thawing temperature. Anhydrous sulphuric acid, on the other hand, not only undergoes aqueous solution with great energy and rapidity, but, long after it has acquired its unit of water, continues eagerly to combine with more, absorbing its vapour from the atmosphere, so as to desiccate everything in its neighbourhood; and the other strong acids have a similar power. Phosphoric acid is thus like a feverish child, begging for a great bowl of water, but pushing it away the moment its lips are wetted. Sulphuric acid is like the sufferer from a gunshot wound, whose insatiable craving for water, no number of goblets can appease; and yet the former acid can drink the latter dry.

Whatever be the explanation of this anomaly, the important fact remains that phosphoric acid is at once more powerful than strong sulphuric acid, and less irritant than weak vinegar, so that it can innocently traverse every part of the body. But of what service it may be asked is it to the body, to be traversed by an acid whether innocuous or irritant? To this, in the meanwhile, it will be sufficient to reply, that the chief

chemical compounds in the organism either are or contain salts, which are produced by the union of acids with bases. A great part therefore of organismal chemistry is the chemistry of acids; and we are now to look at the way in which phosphoric acid, when it ceases to be free and unites with bases, serves the organism by the kind of salts which it forms. Common or tribasic phosphoric acid, *i. e.*, 1 unit of anhydrous phosphoric acid combined with 3 units of water, can exchange these in whole or in part for units of base.[1] It may exchange the water entirely for one base, as it does when it forms the bone-phosphate of lime, which consists of 3 units of lime to 1 of anhydrous phosphoric acid; or it may give away only two units of water, receiving in return the same number of units of base, as in the phosphate of soda of the blood, which consists of 2 units of soda and 1 unit of water, added to the constant unit of anhydrous acid; or it may give away only 1 unit of water and receive in return 1 unit of base, as in the phosphate of potash of the flesh, which consists of 2 units of water, and 1 of potash to 1 of acid. Moreover, where 1 unit of water is retained, each of the 2 given away may be exchanged for a separate base as in microcosmic salt, where 1 unit of soda, 1 unit of ammonia (oxide of ammonium), and 1 unit of water, are together combined with 1 unit of acid. The same acid thus forms, by variations of base, soluble, insoluble, acid, alkaline, and neutral salts. Further: whereas with the same base, ordinary acids form but one salt, or compound, tribasic phosphoric acid can form three. Thus, whether we add caustic soda or carbonate of soda, or muriate of soda (chloride of sodium), to sulphuric acid, we obtain the same Glauber's salt or sulphate of soda containing 1 unit of acid to 1 unit of base. But if we evaporate together tribasic phosphoric acid and caustic soda, we obtain a salt with 3 units of soda to 1 of anhydrous acid: if we pour on carbonate of soda the tribasic liquid, we obtain a salt containing 2 units of soda (and 1 of water) to 1 of anhydrous acid; and if we substitute muriate for carbonate of soda, we obtain a salt

[1] Strictly speaking, the water is acting as base, so that the exchange is of units of aqueous base, for units of some other base, but as it might confuse the general reader to call water a base, I have avoided this mode of expression although it is the customary one among chemists.

containing 1 unit of soda (and 2 of water) to 1 of anhydrous acid. Muriate and carbonate of soda are both largely present in the body, and phosphoric acid must continually encounter them, but it will form a different salt with each, where sulphuric and all ordinary acids would form the same salt with both.

Once more: when tribasic phosphoric acid by parting with 1 unit of water becomes bibasic, it may form salts with 1 unit of water and 1 of base; or with 2 units of the same base; or with 2 units each of a different base; and when the tribasic acid parts with 2 units of water and becomes monobasic, it can act the part of an ordinary acid. Moreover, without loss or gain, but only by a new arrangement of particles, a hydrated phosphate of one class may change into a phosphate of another.

Even this lengthened statement does not exhaust the modifications of phosphoric acid; two additional classes of salts have been described,[1] and phosphates of different classes can unite *as salts* with each other. The number accordingly of possible phosphates is beyond calculation, and the quality of variability appears at its maximum in the compounds of phosphoric acid.

Limiting our attention to the well-known modifications of phosphoric acid, we may sketch in outline how they may render service to the body. The sketch can be only a fancy-picture, yet it may be one mirroring and shadowing, however faintly, the reality of nature.

A child is beginning to walk and the bones of its limbs must be strengthened and hardened. Phosphoric acid accordingly carries with it 3 units of lime to them, and renders them solid and firm. But the bones of its skull must remain comparatively soft and yielding, for it has many a fall, and the more elastic these bones are, the less will it suffer when its head strikes a hard object, so that in them we may suppose the phosphoric acid to retain but 2 units of lime and to form a softer, less

[1] Fleitmann and Henneberg's phosphates, intermediate between the monobasic and bibasic classes, and Maddrell's peculiar double metaphosphates, are described and commented on by Mr. Graham in his *Elements of Chemistry*, vol. i. 2d ed. pp. 448, 449.

consistent solid. And the cartilages of the ribs must be still more supple and elastic, so that in them the phosphoric acid may be supposed to be combined with but one unit of base, as the uncrystalline gelatinous metaphosphate.[1] On the other hand its teeth must be harder than its hardest bones, and a new demand is made on lime-phosphates to associate themselves with other lime salts (especially fluoride of calcium) to form the cutting edges and grinding faces of the incisors and molars. All the while also, the blood must be kept alkaline, that oxidation of the tissues may be promoted, and albumen retained in solution; and yet it must not be too alkaline, or tissues and albumen will both be destroyed, and the carbonic acid developed at the systemic capillaries will not be exchanged for oxygen, when the blood is exposed to that gas at the lungs. So, phosphoric acid provides a salt containing 2 units of soda and 1 of water which is sufficiently alkaline to promote oxidation, dissolve albumen, and absorb carbonic acid, and yet holds the latter so loosely, that it instantly exchanges it for oxygen, when it encounters that gas in the pulmonary capillaries. Again; the flesh-juice must be kept acid (perhaps as has been suggested, in electro-polar opposition to the alkalinity of the blood, as affecting the transmission of the electrical currents which are now known to

[1] "Von Bibra has made the beautiful observation that those bones which are the most exposed to mechanical influences contain the largest quantity of earthy constituents, (chiefly phosphate of lime.) The action of this law is manifested even in different families of the same class of animals; thus, for instance, in the rasores or scraping birds, the femur contains the largest quantity of phosphate of lime, in the grallatores or waders, the tibia, and in all other birds the humerus."—Lehmann's *Physiological Chemistry.* Cav. Soc. Trans. vol. i. 414.

The phosphate of lime in bones was represented by Berzelius as 8 Ca O, 3 $P O_5$; but according to Heintz and Rose it has the composition given previously in the text, 3 Ca O, $P O_5$. In reality, however, neither of these formulæ will always apply to bones although the latter probably represents the condition of the greater part of their lime phosphate. From my own results, and those of others in the course of agricultural analyses of bone earth, I cannot avoid inferring that several phosphates of lime exist in bones, although in the ash of the latter the nature of these salts as they occurred in the living organism cannot be ascertained. I have felt at liberty accordingly to assume as possible the phosphates, referred to in the text as existing in the child's skull and ribs.

traverse the tissues), and phosphoric acid provides a salt, containing 2 units of water and 1 of potash, which secures the requisite acidity. Further: in some of the serous and other liquids of the body, a changeable salt is required; and for this phosphoric acid provides, by combining with soda, ammonia, and water, to produce microcosmic salt which is alkaline in its integrity, but by parting with the easily lost, volatile ammonia, becomes alkaline.[1]

All those compounds are needed in the adult as well as in the infant organism. With the adult we may further connect such an incident as the fracture of a bone, which is repaired by a beautiful process of splicing, during which phosphates, first very soluble, then moderately so, then slightly so, are finally succeeded by dense insoluble bone-earth, filling up the breach till it becomes the strongest part of the reunited bone. And as counterpart of this, we have the most solid bone dissolving under the pressure of a throbbing (aneurismal) blood-vessel, which unless the bone gave way would first torture, and then kill the whole body. Particle by particle, the petrified ivory is pressed, softened, melted, dissolved, and washed away by the same potent acid which hardened it from a thin liquid into a compact solid.

At all periods, moreover, in the life of the body, the liquid albumen and fibrin of the blood are becoming solid albumen and fibrin in the tissues. Both are also becoming, in the nursing mother, the casein of her milk, and that casein in her suckling's body is becoming the albumen and fibrin of its flesh and blood, and building up its organs in other ways.

Each of these blood-forming, flesh-forming, milk-forming, tissue-forming bodies, albumen, fibrin and casein, and likewise their analogue gelatine, are inseparably accompanied in all their liquefactions, solidifications and transmutations by phosphates, which in virtue of their mobility, are able to liquefy, solidify, and undergo transmutation as the body which they accompany does. We cannot pretend to follow those changes step by step, for they occur within the inaccessible penetralia of a living structure; but certain it is that the phosphates accommodate themselves to changes which no other salts we know could submit to.

[1] Lehmann's *Physiol. Chem.* Cav. Soc. Trans. vol. i. 369.

In the particular cases given above, there may be great misapprehension and even signal error. But in the general estimate of the organismal suitableness of phosphates beyond all other salts, there cannot be much mistake. Chemical unions have been compared to marriages, and chemical compounds to wedded pairs. If the comparison is accepted, then the great majority of the mineral acids are monogamists and wedded each to a single base; but phosphoric acid, like an Eastern patriarch, has the privilege if he pleases of wedding three bases, although he is often satisfied with two, and can cheerfully content himself with one. Or, to vary the figure more expressively, the ordinary acids are like the Hindoos under the domination of caste, and when hired as servants stipulate to carry but one thing, and the minimum weight of that. Phosphoric acid is an English servant of all work, lifting three loads at a time, of any three things that require to be lifted, and willing at all times to make himself generally useful.

Putting all figure aside, we may affirm that no acid is known to us, approaching to phosphoric acid in susceptibility of various modification. Even if we were to suppose, that as a hermit crab tries shell after shell till he finds one to fit him, the living organism had made trial in turn of all the mineral acids, we cannot imagine it finally selecting any one but phosphoric acid.

For a knowledge of its remarkable properties we are chiefly indebted to Professor Graham, who was the first also to suggest that its manifold variability specially qualified it for being what I may term the organismal acid *par excellence*. "Phosphoric acid," he observes, "is one of the links by which mineral and organic compounds are connected. And it may be reasonably supposed that it is that pliancy of constitution which peculiarly adapts the phosphoric above all other mineral acids to the wants of the animal economy."[1] He also illustrates this remarkable "pliancy" by the conversion which the hydrated metaphosphate of soda ($Na\,O, PO_5 + HO$) undergoes at 300° F. into the pyrophosphate of soda and water ($Na\,O, HO, + PO_5$), remarking that its conversion "exhibits a change of nature, without a change of composition, such

[1] *Elements of Chemistry*, 2d edition, vol. i. p. 451.

as often occurs in organic compounds, but rarely admits of so satisfactory an explanation."[1]

I would add that the occurrence in plants of *organic* acids which are polybasic, such as tartaric, citric, meconic, and even as it would seem, oxalic acid, points to the organismal importance of polybasic acids throughout the living kingdom, and suggests the probability of organic acids of the same character occurring in animals, which our present methods of analysis do not enable us to reach. The acids of plants have not the pliancy of phosphoric acid, but seem generally as tartaric acid (which is *only* bibasic, like pyrophosphoric acid) to be permanently non-monobasic *in one degree*, but this lesser pliancy is in accordance with the simpler chemical changes of vegetable organisms, nor is the power of their organic acids small. Tartaric acid is much more potent than pyrophosphoric acid, and can transfer at once two such powerful and related bases as potash and soda, in the form of Rochelle salt, into plants. Its whole series of two-based salts is a remarkable one. Oxalic acid forms a not less varied class of so-called super-salts; and those of citric acid are many and singular also. It would seem that a monobasic acid is too narrowly endowed and one-sided to suit the constantly varying exigencies of a plant.

Among the lower animals, as phosphoric acid disappears from their skeletons, carbonic acid takes its place, but, as we see in the shells of molluscous animals, consisting largely of carbonate of lime, with the production of a substance admitting of no such varied interstitial changes, as occur in phosphatic skeletons. Yet carbonic acid is a much more pliant acid than many, and has good, if not indisputable claims to be counted bibasic: at all events it forms many double salts.[2]

[1] Op. Cit. p. 447. Lehmann has fully appreciated these conclusions, although he hesitates to adopt them, observing that "it is almost self-evident that no salts of any other acid could be so usefully applied in the metamorphosis of tissue, as those of phosphoric acid, etc." (*Physiological Chemistry.* Cav. Soc. Trans. vol. i. p. 440). His work appeared in English in 1851, when I first became acquainted with it. The statements in the text regarding phosphoric acid, I have in greater part taught publicly in Edinburgh since 1840.

[2] Similar claims are advanced for sulphuric acid and cannot be disallowed; but it certainly is far less feebly bibasic than tartaric or pyro-

And even in the lowest animals, where silica replaces alike phosphate and carbonate of lime, serving alone to constitute their skeletons, and hard appendages, we encounter a substance which is innocuous, soluble in water, forming very peculiar hydrates, and susceptible of a gelatinous, an amorphous, and a crystalline modification. It has thus the conjoined mobility and stability which seem so essential to organismal ingredients. Further: it has an almost unique power of uniting at the same time with many bases, as we see in the silicates of the mineral kingdom, in glass and in porcelain; and this property may be turned to account in furnishing sponges and others of the lower organisms with the bases which contribute to their growth;[1] as these bases conversely may be the media through which silica enters the organism.

Such are some of the reasons which may be given in explanation of the presence of phosphorus, and especially of phosphoric acid, in the bodies of the higher animals, and in that of man. The subject has been considered purely from a chemist's point of view, without reference to any particular theory of life, or hypothesis regarding the existence or sphere of a special vital force. But nothing is further from my intention than to imply that such a knowledge of the properties of the chemical elements as we can acquire in a laboratory, is sufficient to explain their function as organismal ingredients. It is but one of the data essential to the solution of a most difficult problem; but it is a most important datum, and to the extent that the phenomena referred to in the preceding pages are unquestionable physical truths, they must receive full recognition in every coherent theory of life.

It remains to discuss, from the same point of view, but much more briefly, nitrogen and iron as organismal elements.

Nitrogen, or as it is otherwise called azote, which stands

phosphoric acid, even though a sulphate of soda and potash can be formed; and the acid bisulphate of potash is as incompatible with animal organisms as slightly diluted oil of vitriol.

[1] Since reaching this conclusion, I find that Mr. Graham without reference to organic structures has suggested "that silicic, like phosphoric acid, forms several classes of salts."—(*Elements of Chemistry*, second edition, vol. i. p. 395.) This view was not contemplated in the text, but would as well as that proposed, provide for the transmission of bases and silica to silicious organisms.

at the greatest distance from phosphorus in the group which includes both, is like its analogue, at once very fixed and very variable in properties, but in a way peculiar to itself. Its free or uncombined state is its stable condition. So far as we know, it has no allotropic modifications. In the one shape, that of a permanent elastic fluid, in which it presents itself, it is astonishingly inert. Without taste, odour, or colour, incombustible at ordinary temperatures, and not supporting combustion, very slightly soluble in all liquids, free from acidity and alkalinity, and not poisonous, it occupies the same neutral or negative place among gases that water does among liquids. It unites directly with no other element at common temperatures, and with but one or two at higher ones. This indifference to direct combination is closely associated with its great elasticity as a gas. It is probably, indeed, the body which presents the best example of gasëity or gaseous elasticity. The only bodies which can compare with it in this respect are oxygen and hydrogen, which, like it, have never been liquefied. But oxygen is much more soluble than nitrogen in water and other liquids, and directly unites with many bodies, so as to form solid as well as liquid compounds, from which it is with difficulty set free, and reconverted into an elastic fluid.

It does not appear that hydrogen is more soluble in liquids than nitrogen; but it unites directly with many bodies, and forms both liquid and solid compounds which are stable and enduring, so that it is mediately much more liquefiable and solidifiable than nitrogen.

This pre-eminent elasticity as a gas peculiarly qualifies it to serve the animal organism in its performance of the great function of respiration. Indifferent to all other elements, it dilutes oxygen to a point compatible with its effecting the needful slow combustion of the body, which, if undiluted, it would rapidly burn away. Gaseous nitrogen thus goes the round of the circulation, taking no part in the changes to which the blood ministers, and after making the "grand tour" as a seemingly unobservant traveller, returns to the lungs and the atmosphere exactly as it left them.[1]

[1] Nitrogen is not of less service to organisms as the chief constituent in weight and bulk of the atmosphere, inasmuch as it diminishes the

But though free nitrogen will scarcely unite with a single other free element, by indirect processes it can be made to unite with nearly all the elements; and the compounds which it forms are among the most remarkable which the chemist knows; acids the most potent, such as nitric acid; alkalies the most powerful, of which ammonia is one among a multitude; dyes the most useful, such as indigo; medicines the most energetic, such as quinine; poisons the most deadly, such as prussic acid and strychnia; besides endless other substances, belonging to every category of chemical compounds.

To the nitrogenous bodies as a class, belongs as a distinctive property the utmost readiness to undergo change, and exactly because they contain an element indifferent to change. Its great gaseous elasticity prevents it from entering into combination, and its great tendency to recover the gaseous form causes it readily to abandon its compounds. As Gmelin expresses it, "Nitrogen has probably the greatest affinity of all ponderable bodies for heat, with which it constantly tends to form a gas. Consequently, many of its compounds are decomposed by slight causes, with extreme suddenness, the nitrogen being disengaged in the gaseous form, and often producing the most violent explosions."[1]

One mode in which the characteristic longing of nitrogen for freedom displays itself, is as Gmelin implies, by conferring explosiveness on its compounds. I need only name gunpowder; the various bodies of which gun-cotton is the type; percussion-cap powder and the other fulminates; the so-called ammoniuret of gold; and the chloride and iodide of nitrogen.

In a greatly lessened degree, this chemical fragility and

rapidity of combustion and oxidation at the earth's surface; whilst as a great gaseous envelope which the ocean and tributary waters cannot dissolve, and which neither acts injuriously on rocks, plants, or animals, nor is altered in quality by them, it forms a permanent medium for the production of winds, and a moderator and equaliser of the sidereal light, heat, and other agencies determining climatic differences, such as no other gas, simple or compound, known to us, could be. But however important such services are to the entire vegetable and animal world, they are rendered outside of the organism, and cannot be added to the list of good qualities which belong to nitrogen as an organismal element.

[1] *Handbook of Chemistry.* Cav. Soc. Trans., vol. ii. p. 373.

instability are conferred by nitrogen upon the compounds which it forms within living organisms. The immensely greater and more numerous chemical changes which characterise animals than plants, are essentially connected with the much greater abundance of nitrogen in the former. The difference between the slightly alterable, slowly combustible vegetable cotton, a compound of carbon, hydrogen, and oxygen, and the spontaneously decomposable, explosive gun-cotton, which differs from it in quality of ingredients by the addition of nitrogen, is typical of the distinction between the enduring non-nitrogenous vegetable compounds, and the spontaneously changeable nitrogenous animal compounds; although in this particular case the increase of oxygen in the gun-cotton, exaggerates the instability to the point of explosiveness.

The fibrin, albumen, casein, and gelatine which form the largest part of the muscles, the brain, the nerves, and the soft portion of the bones, as well as of the non-aqueous part of blood, milk, and the other animal fluids, contain much nitrogen, and in the revolution of the circulation this gas is unceasingly availing itself of its power to become free, to change those bodies in a multitude of ways. At all the glands, nitrogenous compounds are present, taking active part in those mysterious processes by which the blood is filtered, transmuted, recreated, and vitalised into bodies unlike itself. During the germination of seeds we can trace the beginning of the process as a cycle of chemical changes, to the action of oxygen on nitrogenous substances which begin at once to change, and soon involve all the non-nitrogenous compounds in change also. During the fermentation and putrefaction of vegetable and animal substances, we find in like manner the alteration beginning with a nitrogenous compound, which, though present in minute quantity, commences an intestine disturbance destined to proceed till everything is altered. Leaven is one of the nitrogenous bodies, and it is sacredly proverbial that a little leaven leavens the whole lump. The curdling of milk by rennet is a similar phenomenon; so also is digestion in its first stage (which we can imitate artificially) as it occurs in the stomach. The morbific matters which develope diseases such as small-pox, are, so far as our limited

knowledge goes, nitrogenous compounds, and we have reason to believe that their action in propagating disease, resembles that of the azotised body diastase (a modification of albumen) in the germination of seeds, and of the albuminous yeast in fermenting sugar. The healthy phenomena of secretion seem to be in many respects similar in character; a readily changeable nitrogenous compound in the process of change, fermenting, as it were, the blood into milk, tears, saliva, or the like.

It is not to be denied that we are quite unable to explain why the fact of a nitrogenous body, undergoing decomposition in the neighbourhood of another and it may be non-nitrogenous body, should cause that other to decompose, although it gives nothing to it and takes nothing from it: why for example sugar, a compound of carbon, hydrogen and oxygen, should change into alcohol and carbonic acid, because vegetable albumen or yeast is changing side by side with it, into substances totally different. But we know that the sugar if alone would *not* change, and that the albumen though alone *would* change, and that when both are placed together the change always *begins* with the albumen. Hence whatever obscurities remain, we are certain of the great changeableness of the nitrogen compounds, and of their power to involve other compounds in great changes also. It is thus that the mobility of nitrogen makes it pre-eminently the modifier of the living organism. Like a half-reclaimed gipsy from the wilds, it is ever seeking to be free again, and not content with its own freedom, is ever tempting others, not of gipsy blood, to escape from thraldom. Like a bird of strong beak and broad wing, whose proper place is the sky, it opens the door of its aviary, and rouses and flutters the other and more peaceful birds, till they fly with it, although they soon part company.

Of all the elements it is at first the least attractive to the chemist; but in the end no one rivets his attention more. His early indifference to it is a tribute to its stability; his lasting esteem for it is a tribute to its mobility. Its twofold character is the measure of its organismal importance.

The elements hitherto considered are all non-metallic, but this sketch would be blameably imperfect if no organismal metal were referred to. And among the organismal metals,

iron is *par excellence* the metal, as certainly as it is, by the testimony of ages, industrially the most excellent of them all. All countries have honoured the smith, and he would wonder more than he does at his own skill, if he realised that the iron which he hammers, is hammered not merely by iron in his hand, but also by iron in his blood. Yet the function of this iron is so little known, that, though statistical men have calculated how many railroads might be made out of the blood-iron of a generation of mankind, the most acute and accomplished chemists tell us, to take the words of one, that "we are unfortunately perfectly ignorant regarding the special uses of iron in the animal economy."[1] And I have to turn to a poet to find a reason why it is so useful. Alfred Tennyson, in his Princess, makes the father of his heroine exclaim, when his stately daughter shows no signs of relenting towards the wounded prince,—

> "I've heard that there is iron in the blood,
> And I believe it."

Old King Gama's final cause for iron in the blood was to secure "a steel temper" for those in whose veins it ran largely. He would have promised the chemist a large percentage of ferric oxide from the blood of the Great Captain, whom his countrymen loved to call the Iron Duke. This is the only final cause I remember to have seen assigned for blood being chalybeate. Perhaps the fine satire of the poet may quicken us to discover others.

Iron is intermediate in properties between the very oxidable metals, such as potassium, and the very unoxidable metals, such as gold. The former yield compounds too fixed, the latter compounds too variable, for the necessities of the living organism with its nicely-balanced affinities, and its stable-unstable equilibrium. Far from either extreme, iron belongs to a group including aluminium, chromium, manganese, nickel, and cobalt; but it differs from them all, and conjoins fixity and variability to an extent which none of them do.

Iron as a metal is readily crystallisable; oxidable at ordinary temperatures even in mass; peculiarly susceptible of magnetisation; fusible only at a very high temperature; aggluti-

[1] Lehmann's *Physiological Chemistry*. Cav. Soc. Trans. vol. i. p. 443.

nating so as to admit of welding occurring at a somewhat lower heat; and possessed at the same, and at higher temperatures, of a peculiar affinity for carbon. It is further remarkable as admitting of a singular passive as well as an active electrical condition. Iron forms three important compounds with oxygen, besides a fourth (ferric acid) not requiring notice. The first, or protoxide, which consists of 1 unit of metal to 1 of oxygen is a powerful base. The third, or peroxide, which consists of 1 unit of metal to 1½ of oxygen, is a weak base, and cannot unite with carbonic acid. The second, which as compared with the first and third is intermediate in composition and also in properties, especially so far as basic power is concerned, is strikingly characterised by being magnetic, and is called in consequence the magnetic oxide. Through these three stages of oxidation, iron can rapidly pass backwards and forwards, altering its basic and magnetic powers as it changes. As peroxide it has a remarkable attraction for organic matter, familiarly exemplified by the difficulty experienced in removing iron-stains from linen, and turned to excellent account by the dyer and calico-printer. This property does not belong to the protoxide, but all the oxides of iron resist precipitation from their salts by alkalies when organic substances like sugar are present, in consequence, apparently, of combining with them.

With the great majority of the non-metallic elements iron forms compounds similar to those which it forms with oxygen. Among these are the remarkable combinations with carbon, which confer upon cast-iron and steel their valuable properties, and the curiously complex radicals with carbon and nitrogen (ferrocyanogen and ferridcyanogen), which occur, for example, in prussian blue, where iron in part acts as a metal, in part acts as a non-metal, as if it replaced both the sodium and the chlorine of common salt.

In virtue of those properties iron can accommodate itself as few metals can, to the metamorphoses of the organism. In the arterial blood full of oxygen it can become a peroxide, cleaving like a dyer's mordant to the organic matter of the corpuscles or blood-cells. In the venous blood, containing little oxygen, it can become protoxide, perhaps combining, as has been suggested, with carbonic acid. At both sets of

capillaries, it may at the crisis of change of the blood from venous to arterial, and from arterial to venous, transiently become the intermediate magnetic oxide. In one or other of those forms, or in similarly variable states of combination with other elements than oxygen, it can enter into the composition of the various solids and fluids of the body in which it is found occurring, and perform, as it does even in the inorganic ferrocyanides, exactly opposite functions in neighbouring portions of the same tissue. At the same time, its combinations are far removed from the category of fragile chemical compounds; even those with organic substances, such as the dye-mordants, resisting the decomposing action of powerful acids and alkalies.

Now, let the characters of iron which have been noted be regarded simply as exponents of a conjoined mobility and stability, without attaching any value to the particular modes in which those characters are supposed above to be organismally serviceable, and let us see how far the metals most resembling iron agree with it in such properties as the dominant metal of the body must possess. Chromium has a basic peroxide and a strongly acid, extremely unstable, higher oxide (chromic acid), but no protoxide or intermediate oxide. Practically it could occur in the body only as the basic oxide, a substance having few affinities, for chromic acid is rapidly destroyed by organic substances and reacts destructively on them, so that it is not surprising that its salts are poisonous.

Aluminium forms only a peroxide, alumina, so that it is an unpliant, unaccommodating metal. Alumina, moreover, (the dyer's most useful mordant), has so excessive an attraction for organic matter, with which it forms insoluble compounds, that it cannot take an active part in organismal changes. In truth, when taken internally, it is prevented by this precipitation in an insoluble form along with the first organic substance which it encounters, from entering the blood except in minute quantity, and it is not retained there.[1] If, indeed, there is any justice in the statement that bakers are in the habitual practice of adding alum to bread, we must be continually swallowing alumina, yet none is found in our blood.

[1] Lehmann's *Physiol. Chem.* Cav. Soc. Trans., vol. i. p. 149.

Manganese as a metal is the very reverse of aluminium, and too variable for the wants of the living economy. It resembles iron, but has a wider range of affinities, and it is very feebly magnetic. It oxidises so rapidly in air, that it can only be preserved in sealed tubes, or under liquids containing no oxygen. In accordance with this oxidability, it forms four non-acid oxides, three corresponding to those of iron, but the fourth, or black oxide, having no analogue among the iron-compounds; and two acid oxides, one manganic acid, corresponding to ferric acid, and like it very unstable, the other permanganic acid, also, though in a less degree, an unstable compound. This susceptibility of oxidation in various degrees, which, moreover, implies a power of uniting variously with other bodies than oxygen, appears to unfit manganese for taking a prominent part as an organismal metal. It does occur in minute quantity in the animal body along with iron, as if to supplement it, but it is more abundant in the spent tissues than in any of the fluids that take part in the vital functions.[1] It appears indeed to be hurried out of the system in virtue of the great mobility of its compounds.

The two metals which most resemble iron are cobalt and nickel. They produce oxides similar to those of iron, and are strongly magnetic. Their affinity for oxygen, however, is less than that of iron, for they remain untarnished where iron rusts. They also dissolve more slowly than it in dilute acids. Their higher oxides are not basic. Their peroxides have not the stability of the peroxide of iron, nor, so far as appears, do they possess the attraction for organic matter which belongs to that body; neither do they form a sharply defined intermediate oxide, like the magnetic oxide of iron. They would not then, if substituted for iron in the living organism, equal it in power, nor do their properties appear to suit the wants of the body better, or indeed so well as those of iron do. Yet they resemble iron so much, that we can well suppose conditions of the system, in which they might be serviceable, and my colleague in the University, Professor Simpson, has long been in the practice of administering salts of nickel in those diseases which are accompanied by a deficiency of red globules in the blood. In such cases iron is

[1] *Op. Cit.*, p. 448.

generally administered, and often with marked utility, but sometimes it is of no service, and then nickel is often beneficial. Dr. Simpson called my attention to this fact more than two years ago, simply as an experiential result, and not as reached through any such theory as that followed above. The fact is on this account the more interesting to me, and my colleague's anticipation that the blood, if rigidly analysed, will be found always to contain nickel, may be confirmed; although, on the other hand, it is quite possible that there may be abnormal conditions of the system, where a metal of the iron-group may be more useful than iron itself, not to the extent of its similarity, but of its dissimilarity to that metal; as manganese for example, where the metamorphosis of tissues is too slow; aluminium where it is too swift. It may be thus that nickel, as well as cobalt, proves serviceable as a tonic; and in that case we should not expect to find them among the normal ingredients of the blood.

Iron then is a unique metal. We could replace it by no other without a sacrifice of properties which are serviceable to the higher organisms. More than this it might be unreasonable to affirm. But there is one feature of its uniqueness which is worth a moment's further consideration. Except nickel and cobalt, it is the only decidedly magnetic metal, and it is more magnetic than they. It must influence the body in virtue of its magnetism in a way no non-magnetic metal could, and its magnetic condition must be continually altering. The patients of Reichenbach may sometimes have deceived themselves, or him, or both, when they declared that their sensations were different, according as they lay along or across the magnetic meridian; but it is certain that the iron in our bodies must be in a different magnetic condition in the opposite positions, and it is reasonable to suppose that some persons may be sensitive enough to appreciate the difference. At all events, the observations of Faraday on the magnetic condition of flesh and of living animals, demonstrate that the organismal iron is magnetically active. We know also that magnetism cannot be developed without a simultaneous development of electricity, so that magnetic changes in the ferruginous blood and flesh must be accompanied by electrical changes.

Electricity also invariably develops magnetism, and we know that electrical currents are constantly traversing the muscles and other organs. Such currents will react on the magnetic masses in their neighbourhood and be reacted on by them, with a corresponding exaltation of the intensity alike of the electricity and the magnetism.

Further, the peculiar force or polarity which acts along the nerves resembles in many respects electrical and magnetic force. It is probable that all three forces or polarities powerfully influence each other, and that the magnetisable iron of the body is continually taking part in such reciprocal actions. If, moreover, the iron in the blood-vessels, as has been suggested previously, becomes magnetic oxide at each half-revolution of the blood, it will be much more magnetic at each of the great crises of the circulation than at any other period. I feel at least assured that the magnetic qualities of iron are among its organismal virtues, and that Copper, for example, however suitable otherwise, could never perfectly replace iron, inasmuch as it is devoid of all but traces of magnetic power.

Such is an endeavour, most imperfect and inadequate, to exemplify one mode in which we may hope to discover why living creatures consist of certain chemical substances rather than of others. I ask for an indulgent estimate of a method of research in which I have scarcely a predecessor; but I submit to criticism examples of the method, because I believe it to be logically free from objection. It only assumes that whatever properties a chemical element possesses before its entrance into an organism, it retains after its entrance. Thus, if iron be crystallisable, magnetisable, electrifiable, oxidable in various degrees, and ready to unite with organic matters out of the body, I assume that it will continue to exhibit those properties within it, whatever may be the additional properties which it manifests in virtue of its being placed in such new conditions as can be realised only in a living organism. When we examine substances in a perfectly dark apartment we discern no colour in them, but when we carry them with us into a lighted room, and perceive the tints which they then display, we do not doubt that they retain all the properties which they exhibited in darkness; and that these

moreover are closely connected with their assumption of colour when light falls upon them. We make a similar but not less legitimate assumption, when we take for granted that all the properties which exist in an element when part of a dead mass, remain in it when part of a living one. Such a mode of inquiry, accordingly as I have suggested, may be prosecuted equally well under the guidance of almost any hypothesis, or theory of life, or without hypothesis or theory at all. And it cannot fail to yield important results.

The careful study of each of the chemical elements with a view to ascertain why it is suitable or unsuitable to become a component of a living organism, may often enable us to anticipate physiological discoveries; as conversely the careful study of the molecular changes which occur in living organisms, may enable us to anticipate chemical discoveries in reference to inorganic bodies.

It has always seemed to me very remarkable that the sciences which are mutually dependent, should so rarely be found furnishing each other with principles which can be used *deductively* as organons of discovery. The chemist, for example, might have said to the physiologist, I find, from my experiments on phosphoric acid and its salts, that it is so unique in its conjoined mobility, stability, and manifold mutability, that I predict you will find it largely present in organisms, and taking an active part in their most characteristic metamorphoses. Or the physiologist might have said to the chemist, I find this phosphoric acid so universally present in the organs of the living body, assisting in functions so different, and accommodating itself to changes of condition so great, that I am certain if you examine its inorganic compounds, you will find them unlike those of any other acid, much more numerous, and very dissimilar to each other.

To take another example. The fact of but one set of tubes being provided in our bodies to convey air *to* the lungs and *from* the lungs, and the fact that gases, irrespective of chemical affinity and of difference in relative density, rapidly intermingle and exchange places, stand in direct connection with each other. The natural philosopher might have said to the physiologist, I find that

a peculiar diffusive force comes into play when unlike gases meet each other, so that in a way liquids cannot do, they exchange places with great rapidity, and pass in opposite directions along the narrowest tube. I predict, accordingly, that though one set of vessels may be provided to carry blood to the lungs, and another to carry blood from them, a single set of tubes will be found all that is provided to carry air to and from those organs, and one channel will prove to be sufficient for inspiration and expiration. Or the physiologist might have said to the physicist, I find living organisms inspiring and expiring through a single canal, which, moreover, in many of them is a tube with rigid walls: there must, therefore, be an unsuspected power of intermingling, and exchanging places on the part of gases, which, if you seek for, you will certainly find. The physiological and the physical fact, however, were discovered independently.

Occasionally we have seen one science assist another in the way suggested. Thus the optician, especially after the invention of the telescope and of spectacles, pressed upon the attention of the physiologist that the living eye must possess the power of adjusting its focus to the vision of objects at different distances. And after some two centuries of unsuccessful endeavours to solve the problem, but not without the discovery of many important truths, in their efforts at its solution, the physiologists of our own day have within the last three years justified the optician by solving the problem, and have added largely to the wealth of their own science.

If there are few such cases, it only shows how much more difficult it is to reason deductively than inductively, and how very rarely man can look down from a point of view, even faintly approximating to that at all times occupied by God, and see a law go forth to its fulfilment.

And therefore before seeking to reach the last conclusion to which our method of inquiry may lead us, I would pause to notice the lesson which it teaches of humility and patience. Kepler, the astronomer, when he could not convince his contemporaries that the laws which he had announced as presiding over the movements of the heavenly bodies did actually exist, nobly consoled himself with the reflection that if God

had waited some six thousand years before he could find one man to believe that He had impressed such laws on the planets, Kepler might well wait one year before blaming his fellow men for not believing him. If God, in like manner, has waited not thousands, but millions of years, before a very few of his children have studied his works, so as to learn, even most imperfectly, why he made them and their Pre-Adamic ancestors of one kind of dust, rather than of another, we need not boast of the little we know, or angrily complain, because our small discoveries about fluorine, or the like, do not seem to others quite so wonderful as they do to ourselves.

With no desire, accordingly, to be dogmatic, or to press for a verdict in favour of my conclusions, I refer to the truths (in so far as they are truths) expounded in the preceding pages as *illustrations*, not *demonstrations* of final causes. To a belief in these no man can compel another, and I would not compel another even if I could. I blame no man for disbelieving them; but I should be glad to secure for all, the happiness which faith in them begets. The doctrine of final causes is at present in disrepute in many scientific quarters, and this can neither be wondered at, nor in many cases much condemned. There have been so many unwise endeavours to sustain this doctrine, by arguments of less than no value, that it has been unavoidably discredited and despised.

All lovers of truth will join in protesting against making a search for final causes, the chief object of scientific inquiry. We are certain to be misled if we do. There are idols of the church, as dangerous as those idols of the den or of the market-place against which Bacon so specially warns us. But when guided by the *Lumen Siccum*, which a desire for the simple truth supplies, we have patiently and honestly reached a result, and then find our hearts swelling with rapture at the wondrous example which it affords of God's wisdom and power, we are traitors to ourselves and to our Maker if we refuse adoration.

I believe that few honest intellects and hearts can come face to face with such truths as I have most imperfectly detailed in these pages, without in the beginning feeling a great doubt of their reality, and in the end a great faith in them; and I know that, like St. Thomas

of old, they will first stand up, and thrust their fingers into the nail-marks on the palms, and their hands into the hole in the side; but by and by they will kneel and say "My Lord and my God!" If some are faithless, I will ask them to look at the Great Panorama with beating hearts, as well as with eager eyes, and I will simply sorrow for them if they think to measure the universe by the intellect and the senses. I follow with unbounded delight and gratitude, though it is at a long distance, the footsteps of the great Philosopher Humboldt, when he goes before me round the vast Cosmos, and with infant-like simplicity shows me every known feature of universal nature, without speculation on its purpose or cause. But I have no sympathy with the Man-Humboldt when he tells me that our most reverent demeanour towards God, is that of not pretending to discover purposes of one kind or another in any of his works; so that we should imitate the Ancient Egyptians who showed their special reverence for Osiris by never naming him. The only attitude that befits us as men, after traversing a mere fraction of the Cosmos, is that of kneeling worshippers.

Nor need we be ashamed to be seen on our bended knees, because Final Causes are so often foolishly dealt with by their admirers. They always will be by a large class. Few realise what the words Final Cause mean. To demonstrate the full reason or entire Final Cause, why one element, such as iron, exists in the body, would demand a perfect acquaintance, not only with all the properties of that element, but with all those of every other element which is also present in the body; besides an acquaintance with much else: and how little do all the chemists of the world know even of a single element?

The sagacious old alchemist, Basil Valentine, in his famous *Currus Triumphalis Antimonii*, in which he has triumphantly ridden down to the present day, and is likely to ride for many a day to come, declares that "no man knows all the virtues of Antimony."[1] With what astonish-

[1] Basil's own words, as given in the quaint translation printed in London for Dorman Newman at the King's Arms in the Poultry, 1678, run thus:—"*Antimony*, like unto *Mercury*, may fitly be compared to

ment would Basil, if he could revisit the earth for half an hour, hear of antimonious, antimonic, and metantimonic acids; of antimoniuretted hydrogen, penta-sulphide of antimony, stibio-methyle, stibio-ethyle, and the like. The coaches of his day did not differ more from the railway carriages of ours, than his "Currus Triumphalis," does from such a Triumphal Chariot of Antimony, as Hofmann, if he chose, could mount upon literary wheels at the present day. Yet Hofmann would find no better motto to put upon the panel of his chariot than Basil's words, "No man knows all the virtues of Antimony," and I may add, no man ever will; nor is the chemist better off in respect to other things than he is in respect to Valentine's favourite metal.

What we call a final cause, is not God's final cause, but only that small corner of it which we can comprehend in our widest glance. The fragmentary corner fills our intellects, not because it is vast, but because they are small, and we find how small they have made it, the moment we try to make the fragment a measure of infinite wisdom. The wisest of us is but a microscopic shell in the ocean of Omniscience, and when left on the shore with a drop of its waters in our cup, we cannot reflect in its tiny mirror more than a drop's worth of the meaning of the universe. And yet we speak as if out of that drop the whole universe might arise! Men of cold, logical intellect have so fully realised this, that on all hands they remind students of science that Bacon declared final causes to be sterile, comparing them to nuns or vestal virgins dedicated to God.[1]

a round circle, of which there is no end; in which the more diligently any man seeks, the more he finds, if process be made by him in a right way and due order. *Yet the life of no one man is sufficient for him to learn all the mysteries thereof.*"—Basil Valentine, *his triumphant Chariot of Antimony, with Annotations of Theodore Kirkringius, M.D.*, p. 19.

[1] "Nam *Causarum Finalium* inquisitio sterilis est, et tanquam virgo Deo consecrata nihil parit."—*De Augmentis Scientiarum*, lib. iii. cap. v. Since writing the text, I find that in the elaborate edition of Bacon's works, of which the first volume has just issued from the press, under the editorship of Messrs. Spedding, Ellis, and Heath, this passage is commented on as follows:—"No saying of Bacon's has been more often quoted and misunderstood than this. Carrying out his division of the *Doctrina de Naturâ*, which, as we have seen, depends upon Aristotle's quadripartite classification of causes, he remarks, that to Physica corresponds Mechanica, and to Metaphysica,

I accept Bacon's statement, and still more his comparison. He is held by most who quote his famous condemnation of Final Causes to have pronounced them *essentially* unfruitful; but if he did not intend simply to signify that they are unfruitful *to man*, he could not have chosen a comparison better fitted to signify an unfruitfulness which was of extrinsic, not intrinsic origin.

Final Causes are sterile, not merely like as, but for the same reason as, the Vestal Virgins were, namely, because they belong to God. These virgins, as well as others, might have become mothers; but no man dare wed them, for they were God's Brides. Neither can any man mate with Final Causes: they will bear no offspring to him. And exactly for that reason are they the most perfect of earthly witnesses to the being and perfections of God. Gentle, solemn, and beautiful, they attract men, and modestly permit them to look on their features; but awe mingles with admiration in the gazer's heart, and the ever-burning fires on the vestal altar forbid all close or impious approach. Nevertheless, we must seek after, and love Final Causes, even with a lover's passion, although in this life they never can be ours. An irresistible impulse compels us to cling to them. It would be a proof of insanity if we were only mortals; as would also be that attempt to be omniscient, which is the constant, though often unconscious aim of every student. But both are the most natural and irrepressible instincts of immortals, who look forward, through God's mercy, to all eternity as their time of studentship, and to all His Infiniteness as the object of their study. For such the contemplation of Final Causes will never end, any more than it will ever beget satiety.

G. W.

Magia. But Metaphysica contains two parts, the doctrine of forms and the doctrine of final causes. Bacon remarks that Magia corresponds to Metaphysica, inasmuch as the latter contains the doctrine of forms, that of final causes admitting from its nature of no practical applications. "Nihil parit," means simply, "non parit opera," which, though it would have been a more precise mode of expression, would have destroyed the appositeness of the illustration. No one who fairly considers the context can, I think, have any doubts as to the limitation with which the sentence in question is to be taken. But it is often the misfortune of a pointed saying to be quoted apart from any context, and, consequently, to be misunderstood."—P. 571.

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